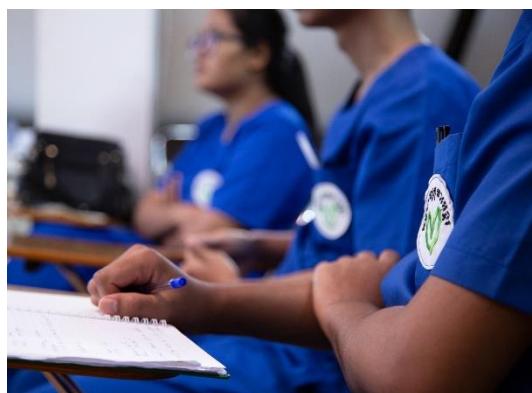


## Pediatric Healthcare Training Academy Specialty Training Report

Prepared for Chao Foundation  
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### Pediatric Healthcare Training Academy Report: Delivering specialist training to address unmet child health needs

#### Introduction



The aim of this initial report for Chao Foundation is to establish a baseline for which future progress on specialty training can be measured. As an objective of AHC's Pediatric Healthcare Training Academy, specialist training to address unmet child health needs in Cambodia remains a significant priority. As no pediatric sub-specialty training is available in Cambodia, AHC is working to formalize the in-house capacity building initiatives that will deliver local intellectual sustainability in a manner that is contextual and responsive to the needs of Cambodia's pediatric patient population. As

one of three pediatric teaching hospitals in the country, AHC has a unique opportunity to not only develop its own specialist doctors, but also provide valuable exposure to medical residents and students who would not otherwise see specialty care in action.

The first six months of the project progressed largely according to plan though the Covid-19 pandemic has created some challenges to training components reliant on visiting international volunteers and external trainings. The education team behind the Pediatric Healthcare Training Academy, led by Mr Duong Vibol, worked to adapt and respond to those challenges despite the constantly changing government issued guidelines and threat of a virus outbreak. This has included, for example, adapting the delivery of Continuing Medical Education sessions by Zoom streamed into multiple onsite classrooms to meet social distancing requirements, as well as encouraging exploration of online learning and coursework as they became available. As the Covid-19 crisis is likely to continue to cause disruption in travel for AHC's specialty doctors who benefit from in-person training from international volunteers and clinical observerships at US and UK based hospitals, online learning and virtual

mentorship will have increased importance in the near term. AHC is working with Health Volunteers Overseas (HVO) to facilitate online courses for specialty doctors to support virtual training. HVO regularly provides skilled volunteers who provide in-person teaching and training support to AHC's medical and nursing teams.

### Progress in Specialty Training A Snapshot:

Specialty	Middle Grade Doctors in Training	Training curriculum developed	Curricula Reviewed	International Mentors
 Pediatric Intensive Care	6	✓	✓	
 Cardiology	1	✓	✓	1
 Neonatology	3	✓		
 Oncology & Hematology	2	✓	✓	4
 Respiratory	2	✓	✓	1
 Neurology	1	✓		1
 Endocrinology	1	✓		1
 Microbiology & Infectious Disease	1	✓	✓	1

## Covid-19 in Cambodia

Despite the low number of Covid-19 cases in Cambodia, just over 230 to date, the indirect effects of the pandemic have been devastating. For many Cambodian families this has meant an immediate loss of daily income as major economic sectors, tourism and garment factories, have come to a standstill. Lost income is putting already vulnerable and poor families at risk of reduced spending on healthcare and food, and organizations like the Global Financing Facility estimate that child mortality in Cambodia could increase by 35% with continued healthcare disruption.

AHC has responded to the Covid-19 crisis in a variety of ways. With the global economic downturn, many of AHC's reliable funding sources are now unstable. This includes nearly \$2M in funds that come from in-country donors, international fundraising events and new grants. To mitigate the financial impact, AHC took immediate action to reduce spending where possible, saving approximately \$400,000 and reducing the operating budget to \$5.9M. In addition, AHC will utilize up to \$300,000 of its reserve and has secured a one-time emergency grant from a current partner. These measures have helped to fill the funding gap and additional progress has been made in the renewal of current donor support. To date, AHC's funding gap stands at \$900,000, down from \$1.7M at the start of the pandemic.

From a healthcare standpoint, fear of the virus and catching it at health facilities saw a marked decrease in outpatient numbers in March and April. Simultaneously, all community based activities were paused as requested by the government, and some education activities had to be delayed as medical and nursing students were sent back home and large gatherings (such as a group of 20 students in classroom) were banned. In mid-May, AHC's community teams were invited back into the rural villages by local authorities in order to provide essential hygiene education and supplies as well as to dispel misinformation around the virus. The team went house by house to deliver information on hand washing, mask wearing, social distancing and where to go in case of presentation of symptoms.

As activities are slowly resuming to a new normal in Cambodia with social distancing and extra precautions in place, AHC remains as committed as ever to our strategic aims and to improving healthcare for all Cambodian children.

Long term implications to child health remain a concern for AHC. Cambodia has made progress in reducing under five mortality rates over the past two decades, but the longer the crisis continues and the indirect effects disrupt Cambodia's economic sectors, the more at risk child health outcomes become. **AHC is seeing early signs of concern, with a 45% increase in cases of undernutrition presenting at the hospital compared to last year at the same time.** Both in-hospital and community teams will continue to monitor these trends so that AHC can respond appropriately.

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## Project Update: Delivering specialist training to address unmet child health needs

AHC is a leader in specialty care for conditions that can't be treated anywhere else. The initiative to fill this gap in available pediatric care stems from the needs of the patients who arrive AHC's gates and an awareness of the changing child health challenges as Cambodia continues to develop. To make this

sustainable, however, AHC is developing its own cohort of specialist doctors because other local resources do not currently exist.

AHC's specialty areas have been established based on the increase in demand seen in the hospital as well as with an eye to future as non-communicable diseases become more prevalent with Cambodia's developing economic status.

While capacity building and professional education has always been a priority at AHC, the aim of this project to establish a framework for specialty training and formalization of that process is reflected in the progress made from the start of the year. Many learnings and challenges have been identified in building out a specialty framework; some specialty areas, like that of oncology and respiratory, for example are more advanced and better established than other specialty areas. Upon reflection, this is namely due to three central factors: **a curricula that is contextual to Cambodia's health delivery challenges, involved mentors who can deliver expert teaching in-person and online, and a well-developed monitoring and planning system to support regular, progressive learning that moves away from teaching and learning that is 'ad hoc'.**



*Specialist Dr Vannak checks on a young oncology patient*

The oncology and hematology specialty area, for example, is an ideal model that could be replicated for other specialties. AHC oncology specialists, Drs Vannak and Sreynich, are guided by a curriculum that was developed by AHC's education team in partnership with leading child cancer experts in the US and UK. The curriculum has been modified from the Royal College of Pediatrics and Child Health and is supported by mentors at Boston Children's Hospital, Wisconsin Children's Hospital and others. The curriculum is delivered over four years with sixteen modules covering numerous medical topics, each with expected learning outcomes that are relevant to the childhood cancers presented at AHC. The curriculum also encourages the development of essential professional skills such as:

- good governance (project audits and evaluation, identification of quality indicators, investigation of errors)
- teaching and research (delivering teaching to others, review and apply medical literature, knowing how and where to find knowledge to continue medical education)
- management (leadership and teamwork)
- communication (understanding psychosocial, emotional and behavioral aspects of child with cancer, speaking to parents and effectively discuss diagnoses and management plans, respecting confidentiality)

The robust curriculum and learning outcomes is supported through weekly case conference calls with international mentors who provide professional advice on difficult cases as well as virtual teaching on specific module topics. This continuous practical and theoretical learning is complimented by in-person teaching when possible. For example, Drs Vannak and Sreynich spent two weeks in the US last year

observing in pediatric oncology wards. US based international mentors also commit to spending time at AHC in Cambodia where bedside teaching, skill based practice and lectures are delivered.

The combination of these critical elements have propelled the learning and skills of AHC's oncology specialists at a crucial time in the development of the oncology program at AHC. Only with skilled, local medical practitioners, can AHC effectively provide lifesaving care to children with cancer in Cambodia.

It is with this same intention that AHC is looking to build out and establish a framework across all specialties. From January to June 2020, progress was made on the following three project areas:

### 1. Training AHC middle grade doctors in medical specialties

AHC is currently training 17 middle grade doctors in specialties. These doctors have achieved a Certificate of Pediatrics and are now specializing in a particular area of focus over a three to four year period. Training comprises of self-directed learning, attending relevant CME sessions, and importantly, case-based care.

**AHC Middle Grades in Specialty Training**

Specialty	Name	Standing	Case-based Care
Pediatric Intensive Care	Pen Sotheavy	Year 3	557
	Hinh Sally	Year 2	
	Pen Chamrong	Year 1	
	Keng Yi	Year 1	
	Um Hemsophearm	Year 1	
	Keo Santepheap	Year 1	
Cardiology	Eang Habsreng	Year 2	387
Neonatology	Long Bopheak	Year 3	174
	Nhan Ladin	Year 3	
	Khim Samithphalkun	Year 3	
Oncology & Hematology	Korb Sreynich	Year 2	582
	Sam Lyvannak	Year 2	
Respiratory	Kong Sokchinda	Year 3	246
	Um Khemouy	Year 1	
Neurology	Khan Khoeunrachana	Year 3	486
Endocrinology	Ly Sopheak	Year 3	61
Microbiology & Infectious Disease	Suy Keang	Year 3	N/A*

\*The Microbiology & Infectious Disease specialists provided support to 1,212 admitted patients with over 2,000 bacteriology tests.

While outpatient numbers dipped in March and April due to fear surrounding the virus, inpatient and specialty care numbers remained stable throughout, and in some cases, higher than usual. This provided specialty doctors with plenty of opportunity for practical, case-based learning as they delivered essential medical care.

One significant challenge identified over the reporting period is the lack of a standardized training portfolio that can be utilized across each specialty allowing for regular monitoring and tracking of progress against the curriculum, attainment of essential skills and procedures, and exposure to special cases within relevant medical units.

For example, a pediatric intensive care portfolio would include:

- A list of topics covering essential knowledge required in the ICU including airway obstruction, ventilation, shock, trauma, cardiac events, acute infections, organ failure, hematological disorders, neuromuscular problems and neurological emergencies
- Confirmation of experience and knowledge of specific procedures and skills like intubation, chest drain, central and arterial line insertion, lumbar puncture, wound sutures and needle thoracentesis
- Exposure to common cases in Cambodia as well as special cases, including for example, anaphylaxis, severe pneumonia and respiratory failure, resuscitation, burns, drowning, snake bites, and severe dengue

Though curricula is developed for all specialties and doctors undertake self-directed learning guided by that curricula, the aim for the next six months is to develop a formal reporting tool and procedure that all specialty doctors can use to track progress and provide evidence for eventual AHC certification. Doctors will begin to submit semester reports to the education team to allow for monitoring of progress.

## 2. Specialist curricula reviewed by international technical expert and available for sharing with other healthcare facilities

**Seven medical specialist curricula have been authored for each specialty.** Mr Doung Vibol and Mr Chuop Bophal have led the development of each curricula, pulling from teaching syllabi in the US and UK and then contextualized for Cambodia and AHC. Curricula drafts are initially reviewed internally at AHC by the Hospital Director, Medical Director, and relevant local mentors where possible. The aim is to have each specialty curricula then reviewed by an external expert which allows for inclusion or adaptation of updated knowledge, skill and attitudes towards the medical specialty, as well as exposure to all aspects of available technology and techniques. Progress has been made in many of these areas, though four areas (pediatric intensive care, neonatology, neurology and endocrinology) have yet to be reviewed externally.

Dr Hassan, an Adolescent Medical Specialist at Boston Children's Hospital and Assistant Professor of Pediatrics at Harvard Medical School, said this about working with AHC to develop the endocrinology curriculum:

*"Dr Bophal and I would go through the endocrinology curriculum, and he was very good about ensuring that what was included wasn't out of the organisation's capacity nor super complex, but geared towards the cases they would actually be seeing... The teaching has moved from being didactic to being case-based and hands-on – the same way we teach residents in the US. In my first years volunteering, it*

*wasn't as hands-on. But now, during rounds, they're feeling the thyroid gland, making sure it's not enlarged, doing the exam assessment as a group. "*

Curricula consists of multiple modules over three to four years covering outcomes across the following objectives: technical skills and procedure performance, teaching and research, professionalism, management skills and governance. This is delivered through mixed-methodology teaching including clinical practice under experienced supervision, bedside teaching, trainee case presentations, regular CME sessions and external training through clinical attachment either domestically or internationally, which AHC hopes to resume when possible due to the Covid-19 pandemic.

#### Specialty Curricula in Review

Specialty	Curricula Length (Years)	Externally Reviewed By
Pediatric Intensive Care	4	
Cardiology	4	Dr Mark Duster University of Colorado
Neonatology	3	
Oncology & Hematology	4	Dr Leslie Kean Harvard Medical School & Boston Children's Hospital
Respiratory	3	Dr Michael Wall Oregon Health & Science University
Neurology	3	
Endocrinology	3	
Microbiology & Infectious Disease	3	Dr Paul Turner Oxford University

A request to Australian based pediatric hospitals has been made to facilitate the review of the intensive care curricula. Additional formal requests for curricula review will be made over the remainder of the year to identify volunteers willing to review Neonatology, Neurology and Endocrinology specialty curricula.

### 3. Secure an international technical partner or mentor for each specialty



*Dr Thyl (second from right) mentors middle grade doctors in microbiology and infectious disease. Dr Thyl is Cambodia's first microbiologist.*

Technical partners and mentors, whether local or international, provide important leadership for AHC's specialty doctors. Establishing formal mentorship plans though, has been difficult to achieve due not only to the coronavirus, but also to time and resources required from internationally based partners. Many times, international volunteers who have spent time at AHC naturally become mentors to middle grade doctors, and this is especially true in specialties. While current circumstances have prevented international volunteers at AHC, middle grade doctors have looked to their seniors or other local resources for support.

While only AHC's oncology and microbiology specialties are part of a formal partnership, long-term volunteer mentors have provided significant training and support on the ground and online.

#### Partnerships & Mentors

Specialty	Local Mentor	International Mentor/Partner	Formal MoU
Pediatric Intensive Care		University of Massachusetts	
Cardiology	Dr Ngeth Pises Dr Hok Kimseng	University of Colorado	
Neonatology	Dr Neou Leakhena Dr Claudia Turner		
Oncology & Hematology	Dr Sing Heng	Wisconsin Children's Hospital, Boston Children's Hospital & Harvard Medical School	✓
Respiratory		Oregon Health & Sciences University	
Neurology		John Radcliff Hospital & Oxford Children's Hospital (UK)	
Endocrinology		University of Minnesota Boston Children's Hospital	
Microbiology & Infectious Disease	Dr Miliya Thyl Dr Paul Turner	Cambodia-Oxford Medical Research Unit, Oxford University	✓

*[AHC Neurology Subspecialist Dr Rachana] arranged for her most challenging patients to come to the clinic during the weeks I visit. Rachana sees the children and we discuss each child in turn. Occasionally we go to consults in the ward... Between and since these visits, I have been able to support Rachana by email with difficult cases. In addition, we have been able to arrange for Rachana to come to Oxford and stay with my wife and me whilst attending a three-week programme in the paediatric neurology department in the Oxford Children's Hospital. This has been helpful to Rachana in two ways – first seeing a range of paediatric neurology cases and discussing diagnosis and management; second, developing links with my colleagues so that, hopefully, there will be a wider circle to support her directly and by email over the coming years. It has been such a pleasure and privilege for me to get to know Dr Ke, Dr Rachana and their enthusiastic and welcoming clinic colleagues. "*

Dr Michael Pike Honorary Consultant Paediatric Neurologist, Oxford Children's Hospital and Honorary Senior Lecturer, University of Oxford



## Looking Ahead to July – December 2020

The progress made in the first half of the year is reflective of the importance of specialty training at AHC, and its subsequent effect on delivery of specialty care. AHC has recognized this as a strategic priority to develop, and this has become even more important in light of the Covid-19 pandemic, where disruption to essential health services for all children, and especially children with special or chronic conditions, has the potential to exacerbate the double burden of disease and puts child mortality at risk.

The need for specialty doctors in Cambodia continues to grow. AHC's Pediatric Healthcare Training Academy team is committed to filling the gap in pediatric medical training to achieve sustained, local expertise. Over the next six months, the team will be working on the following initiatives:

- Facilitating online training and workshops with HVO and other partners
- Develop and implement a Specialist Training Portfolio to be reviewed every semester
- Continued support of specialty doctors in their day-to-day patient care and self-directed learning
- Seek external review of finalized intensive care, neonatology, neurology and endocrinology curricula
- Continue recruiting international volunteers and mentors in specialty areas that are lacking
- Develop and test a formalized mentorship system consisting of regular tele-conference consultations for each specialty, modelled on existing oncology specialty framework

## Specialty Training Case Study: AHC's Chief of ER/ICU

Dr Meas Vorlark is from Phnom Penh, the capital city of Cambodia. From 2004-2012, she studied for her bachelor medical degree at International University, also in Phnom Penh. Today, she is AHC's newly appointed Chief of Emergency Room and Intensive Care Unit (ER/ICU).

While she was undertaking her medical degree, one of her professors introduced her to Angkor Hospital for Children (AHC). Following her professor's advice and encouragement to seek further learning opportunities, Dr Vorlark sought to improve her skills and knowledge in the pediatric field. In 2013, she heard of an opportunity to apply for a pediatric residency program at AHC. She subsequently applied, and was accepted into the three-year program.

*"The pediatric residency program was an interesting program. It provided me a great opportunity to gain a lot of new and practical knowledge that was not taught at school. It was a bridge of my career path into pediatric healthcare." – Dr Vorlark*



As part of the program, she rotated through different wards at AHC including the Outpatient Department, Inpatient Department, Neonatal Unit, and Intensive Care Unit (ICU). This allowed her to be exposed to a wide range of practical pediatric disciplines on top of her general medical knowledge, including exposure to specialist medical units that are not often found in other Cambodian hospitals.

After Dr Vorlark successfully completed the three-year residency program with an outstanding achievement at AHC, she continued on as part of AHC's Specialty Training program to achieve sub-specialty training in Pediatric Intensive Care. No formal sub-specialty training for pediatric intensive care is available within the medical education system so AHC has had to develop its own experts to meet the evolving needs of children today.

The Specialty Training took four years to complete and was based on a curriculum of several modules that covered essential knowledge and topics relevant to pediatric health emergencies in Cambodia. Throughout those four years of advanced training, Dr Vorlark worked hard to balance her demanding day-to-day patient care schedule with learning and studying on her own time and attending weekly Continuing Medical Education sessions. She read books and medical literature at home, as well as attending formalized training in Advanced Pediatric Life Support, Crisis Team Management, Diploma in Child Health/International Postgraduate Pediatric Certificate and Pediatric Basic Assessment & Support in Intensive Care.

AHC's ICU is a critical unit to saving children's life from life-threatening, severe diseases and traumas. It requires strong support and cooperation with other specialty departments including for example, the microbiology lab and surgical and radiology unit to provide appropriate holistic and compassionate care to patients with complicated cases in the ICU. As the most advanced pediatric ICU in the country, Dr Vorlark is especially passionate and committed to her role in the ICU. Dr Vorlark notes that when she started in the ICU, she was apprehensive as these are some of the sickest and most vulnerable patients at AHC. As part of her Specialty Training, she was supported to work through the toughest of cases medically, and also in her leadership, management and confidence building skills.

Dr Vorlark completed her specialty training in early 2020 and was appointed Chief of ER/ICU in March 2020. In this new role, she oversees all unit operations, including staff management and treatment provision.

Despite the fact that it is challenging and sometimes stressful to work with complicated cases, Dr Vorlark is happy and proud to be a part of a team that is saving the lives of many children who are severely sick. Besides saving lives, Dr Vorlark likes working at AHC because AHC provides a high standard of care, strong support from team and management, and essential equipment such as a ventilation machine, which is unavailable at most hospitals.

Dr Vorlark still hopes to continue building her own skills and is hopeful that a pediatric intensivist expert will be identified to support her continued professional development. She also now plays an important role in building capacity of other ICU doctors, new fellows, medical interns as well as government healthcare professionals. Through AHC's Specialty Training program, she has transitioned from mentee to mentor. Dr Vorlark, and other specialty doctors in training, are at the forefront of pediatric care in Cambodia, meeting the needs of today's patients and contributing to long term, intellectual sustainability in pediatric healthcare.