Appendix 1: Main Health Indicators

Indicators	Results				Targets	
	CDHS 2000	CDHS 2005	CDHS 2010	CDHS 2014	CMDG 2015	NSDP 2018
Stunted	49.8%	42.7%	39.9%	32.2%	25.5%	
Wasted	16.8%	8.4%	10.9%	10.0%	6.0%	
Under-weight	38.5%	28.1%	28.3%	24.0%	19.0%	
Infant mortality rate (1,000 live births)	95	66	45	28	50	32
Under-five mortality rate (1,000 live births)	124	83	54	35	65	42
Children under one year received all basic vaccines	31.0%	60.0%	74.0%	73.4%		X
Children age 6-59 months with anemia	64.0%	62.0%	55.1%	55.6%		X
Children under five had diarrhea	18.9%	19.5%	14.9%	13.0%		
Children under five with diarrhea received treatment	21.6%	37.0%	58.9%	68.8%		X
Children under five had ARI	19.8%	8.5%	6.4%	6.0%		
Children under five with ARI received treatment	35.0%	48.3%	64.2%	55.5%		X
Maternal mortality (100,000 live births)	437	472	206	170	250	130
Pregnant women attended antenatal care by health personnel	38.0%	69.0%	89.0%	95.0%		95.0%
Women age 15-49 with anemia	57.8%	46.6%	44.4%	25.2%		
Birth attended by skilled providers	32.0%	44.0%	71.0%	89.0%		91.0%
Birth occurred in a HF	10.0%	22.0%	54.0%	83.0%		
Have had multiple abortions	29.0%	44.0%	26.0%			
Contraceptive prevalence rate	18.5%	27.2%	34.9%	39.0%		
	Targets					
	NSDP 2013	NSDP 2014	NSDP 2015	NSDP 2016	NSDP 2017	NSDP 2018
Communicable diseases						
Malaria mortality rate reported by PHF (100,000 population)	0.08	0.08	0.08	0.08	0.08	0.08
Dengue mortality rate reported to PHF	0.3%	0.7%	0.5%	0.5%	0.5%	0.3%
TB cases (100,000 population)	725	694	653	612	571	530
TB mortality rate (100,000 population)	63	60	57	54	51	48
HIV prevalence rate	0.7%	0.7%	0.6%	0.3%	0.2%	<0.1%
PLHIV on ART survived after 12-month treatment	90%	90%	90%	90%	90%	90%
Non-communicable diseases						

Prevalence of hypertension among adult aged 25-64 years	11.2%	11.2%	X	X	X	X
Prevalence of diabetes among adult aged 25-64 years	2.9%	2.9%	X	X	X	X
Number of women aged 30-49 years received cervical screening at least one	X	38,600	42,460	46,710	51,380	56,528
Number of newly diagnosed cervical cancer (100,000 women aged above 25 years)		30.6	31.2	31.8	32.5	33.1
Prevalence of blindness	0.38%	0.35%	0.32%	0.29%	0.27%	0.25%
Road traffic mortality (100,000 population)	<11.60	<11.60	<11.60	<11.60	<11.60	<11.60

Source: CDHS 2000-2015; NSDP 2014-2018; CMDG 2010

Note: infant mortality: the probability of dying before the first birthday; under-five mortality: the probability of dying between birth and the fifth birthday Abbreviations: ARI: acute respiratory infections; CDHS: Cambodia demographic and health survey; CMDG: Cambodia millennium development goal; HF: health facility; NSDP: national strategic development plan; ODS: oral rehydration salts; PHF: public health facility

Appendix 2: Health System Financing and Social Health Insurance Schemes

Health System

The Cambodian government started to rebuild its health sector with fewer than 50 medical doctors after the end of the Democratic Kampuchea Regime (1975-1979) that completely destroyed all of the country's infrastructures. A socialist health system consisting of human resource development programs for medical doctors and the development of commune clinics was established during the People's Republic of Kampuchea (1979-1989) to meet the urgent need. After the first general election in 1993, the government formed a basic national health system using all available local resources in combination with some external support.

In 1996, the Ministry of Health (MoH) in collaboration with the World Health Organization (WHO), key bilateral donors, and Non-Governmental Organizations (NGOs) developed Health Coverage Plan (HCP), a framework for establishing health system infrastructure based on population and geographical access criteria, to expand health services by using a two-tier system, Health Center (HC) and Referral Hospital (RH). The criteria set in HCP is 10,000 population per HC and 200,000 per RH/Operational District (OD). At the same time, a health financing charter, which allows public health facilities to charge user fees and provide fees waiver to the poor, was also adopted. This charter aims to curb unofficial charges and provide additional revenue to Public Health Facilities (PHF).

Health Center provides Minimum Package of Activities (MPA) including reproductive health, mother to child health, non-communicable and communicable diseases, small surgery, and health education. A minimum requirement for a HC is to have at least 8 staff including one doctor, one or two midwives, one or two nurses, and a few non-health staff to fully provide all required health services to population in the assigned catchment area. A health post, the lowest tier, is required to have only one midwife and one nurse. Referral Hospital provides Complementary Package of Activities (CPA) including diagnostic services, inpatient services, specialized consultations, emergency care, and rehabilitation services, and is classified into three levels (CPA1, CPA2, and CPA 3). A CPA1 hospital is required to have at least 49 health workers to be able to provide a good quality package of services. Most provincial RHs are CPA3 hospitals.

Social Health Insurance (SHI)

Health Financing Charter in 1996 allows health facilities to charge user fees, whereas the poor are granted fee waiver. However, after the reform, the

proportion of the poor patients who had received fee waver was very low because there were no proper reimbursements for the services provided to the poor. Health facilities that had been operating at or near to full capacity had no incentive to provide fee waiver to the poor, as this waiver affected salary supplement of their staff. When this mechanism was not favorable for the poor, the demand and supply sides health financing were initiated to reduce financial barriers to people's access to healthcare and to improve as well as increase health services for the population at large. The demand-side mechanism is channeled through third party payers. This mechanism includes schemes such as Health Equity Fund (HEF), Community-Based Health Insurance (CBHI), Voucher Scheme, and Social Health Insurance (SHI). The supply-side mechanism includes user fee with exemption policy for the poor, Subsidy Scheme (SUBO), and Special Operating Agency (SOA).

As laid out in the strategic framework for healthcare financing 2008-2015, the role of HEF is to enable the poor who live below the poverty line as identified by MOP to access health services needed and protect them from catastrophic health payments, while the role of CBHI is to provide a risk pooling plan for informal sector population who live above the poverty line. Formal sector population is protected by SHI. All the prepayment schemes, as stated in the draft of master plan on social health protection developed by the MoH in 2009, will be consolidated and put under one unified national institute.

Demand Side Mechanisms

Health Equity Fund (HEF)

Health equity fund, a third-party payer for health services, were initiated in 2000 with funding support from development partners in response to the need to support the poor when the exemption system had not been functioning well. After a few years of operation, the Cambodian government had started to fund these schemes partially to scale up the coverage. Now, the government has increased its contribution up to 40% of the total cost. The HEFs aim to improve access to health facilities, reduce OOP spending, and enhance rights of the poor population. The beneficiaries for these schemes are either pre-identified at the community before healthcare demand or post-identified at health facilities during the episode of illness. The benefit packages include financial support for health services' utilization at RHs and HCs, transportation costs for getting RH care or delivery services at HCs, food allowances for caretakers of patients stayed at RHs, and funeral benefit if patients die while getting treatment at the RHs. Before June 2016, these schemes had been implemented by a number of local NGOs, which were known as Health Equity Fund Operators (HEFOs), at the district level, and at the national level, the schemes has been monitored by the International Organizations, which are known as Health Equity Fund Implementers (HEFIs).

From mid of 2016 onward, some of the tasks of the HEFOs have been incorporated into health facilities themselves, and the remaining tasks of HEFOs such as helping with post-identification of the poor, reporting on consumer satisfaction, and raising awareness about HEFs are undertaken by HEF Promoters (HEFPs). Moreover, in 2018, an independent certifying agency (PCA) will be established to crosscheck and verify the quantity and quality of services' utilization by the poor and vulnerable population in replacement of the current HEFI. These schemes have reimbursed on average USD 22.5 and USD 3.75 per case for IPD and OPD at RH, respectively. The average reimbursement for a consultation at a HC was approximately USD 0.75.

While HEFs have improved access to health services among the poor and protected them from financial catastrophe, the implementation of the schemes have faced several challenges. The operation of these schemes involved multiple partners such as government, development partners, NGOs, and IOs. This multiple parties' engagement has created a fragmented system with high overhead costs, high monitoring and evaluation costs, and complex reporting requirements. In addition, identifying the poor is a daunting task as poverty is not static. There are individuals who are poor for a very long time, and individuals who move in and out of poverty. The equity cards, which entitle the poor to access free health services at public health facilities, are updated every three-year. Some are eliminated from this process due to quota set by the government. The transiently poor are captured through post-identification at the health facilities during the episode of illness. Previous studies have shown that the MOP's ID poor scheme captured only about 70% of the poor. A study in Oddar Meanchey, a province where HEF had been implemented, reiterated this point. The exclusion errors were found to be bigger than inclusion errors. The recent Health Equity for Quality Impprovment Program (HEQIP), the sucessor of HSSP2, was degsiend to settle some of the above issues. The HEQIP is officially implemented from Auguest 2016 to 2020.

Community-based health Insurance (CBHI)

Community-based health insurance, a type of insurance that is designed based on the principles of risk pooling and pre-payment for health services, was established in 1998. These schemes are operated by various NGOs and IOs, and supported by donors and revenue collected from enrollees. Premiums are sold to the community members at low cost, and the insured persons are entitled to use certain services listed in the benefit packages at the contracted health facilities. For the informal sector or the semi-formal employment sector, premiums can be paid on a monthly basis, whereas the formal sector, employers are mandated to share at least 50% of the cost. Households can move between HEF and CBHI schemes according to their socio-economic status.

Voucher Scheme for Reproductive Health Services

Voucher scheme began in 2011 with the aim to reduce maternal mortality by supporitng poor women to use reproductive health services at contracted public and provate health facilities. The benefit packages include antenatal care, delivery, postnatal care, family planning, and safe abortion. For health facilities that have no HEF scheme, this scheme also reimburses transportantion costs and user fees for patients who get care. This scheme is funded by German Develoment Bank (KFW), managed by EPSO company, and operated by Action for Health (AFH), a local NGO.

Social Health Insurance (SHI)

There are two types of social health insurance schemes, the national social security fund (NSSF) for the private sector empoloyees which is put under the authority of the Ministry of Labour and Vocational Training (MOLVT), and the National Civil Servant Social Security Fund (NCSSF) which is put under the authority of the Ministry of Social Affairs, Veterans, and Youth (MOSVY). The NSSF, established in 2007, operates as a public self-financing institution, which is governed by an independent board to deliver work injury insurance and helath insureance to private sector workers. The work injury insurance scheme began in 2008 mandates owners of enterpirses with 8 empoyees or more to pay 0.8% of average wage of employees to NSSF. There have been around 7,041 enterpirses with 1,021,588 employees registred with the NSSF. The health insurance for private workers was lauched in mid of 2016 in two privinces (Kampong Spue and Kandal) and one capital city (Phnom Penh). The scheme is expected to gradually scale up in 2017 to other privinces. The NCSSF was established in 2009 and the sub-decree on the provision of pension, occupational injury, and other benefits for civil servants have been drafted. This scheme is expected to start in 2017.

Supply Side

User Fees, Fee Exemption for the Poor, and Free Health Programs

User fees have been implemented in public health facilities since 1996. Revenue collected is allocated as the following: 60% for staff incentives, 39% for operation costs, and 1% for national treasury as instructed by the Inter-Ministerial Prakas between the Ministry of Economic and Finance (MEF) and the MOH in 2005. The exemption fees for the poor are reimbursed by the MoH, of which 40% of the payment is used for operation cost and 60% for staff incentive. Certain health services, such as tuberculosis, antiretroviral drug, immunization, deworming, micronutrient supplements, are delivered for free to general population. On top of these, the government has implemented a midwifery incentive scheme since 2007 to increase delivery at public health facilities. Midwives at HC and RH receive USD 15 and USD 10 for each live birth, respectively. This output-based scheme reimburses public health facilities quarterly through the general department of public administration and finance of the MoH.

Special Operating Agency (SOA) and Service Delivery Grant (SDG)

Special Operating Agencies (SOAs), initiated in 2008 by the Council for Administrative Reform (CAR), provide public service delivery bodies with a range of autonomy to make the best use of their human and financial resources to deliver the highest possible quality of services in the effective way. In the health sector, SOAs aim to improve the quality as well as delivery of public health services in response to health needs, gradually change the behavior of health staff, and develop sustainable service delivery capacity. Funding for the SOAs' regular cost comes from the national budget in addition to Service Delivery Grant (SDG) via second Health Sector Support Project (HSSP2). SOA health facilities are eligible to charge fee for services or contract with HEFO to deliver services to people in their catchment area. As part of the contract with the MOH, the SOA manager has the authority to terminate private practice, hire or rotate staff, and implement a range of performance-based staff incentives.

Government Subsidy for the Poor

The government subsidy scheme, which later has been known as SUBO, emerged in 2006 where health facilities are reimbursed user fees exempted for the poor. It is treated as one of the HEF schemes, but it does not operate through third-party implementer. Health facilities get a flat rate reimbursement quarterly for fees exempted for the poor from the provincial treasury. The rates for outpatient and inpatient services at a health center are USD 0.25 and USD 2.5 per case, respectively. CPA1, CPA2, and CPA3 RHs are reimbursed USD 10, USD 12.5, and USD 17.5 per case for impatient services, respectively. National hospitals receive USD 20 per case regardless of condition and length of stay. According to the inter-ministerial Prakas 809, the revenue collected through this scheme is required to use for staff incentives (60%) and for improving healthcare services, purchasing drugs, and medical materials (40%). Unlike other HEF schemes, this scheme does not cover transportation, food, and funeral costs. But, the procedure of identifying the poor for health services is similar to HEF.

Although there is no coverage restriction in the Prakas, this scheme is mainly implemented in the areas without HEF scheme. It was first piloted in nine ODs in 2007 and another three ODs in 2011. The scheme has not been scaled up since 2011, and the total spending on this scheme has substantially decreased. An evaluation study of SUBO scheme in 2011 highlighted the design issue and the implementation gap, which could severely reduce the effectiveness of the scheme. The contract or Memorandum of Understanding (MOU) on SUBO scheme between Department of Planning and Health Information (DPHI) and ODs or NHs have not been developed; staff at the health facilities with SUBO scheme have not received enough training to operate the scheme; some poor patients with or without Equity Access Card (EAC) have paid user fees for their services. With these constraints, this scheme has been recommended to continue with improved design or replace with HEF scheme.

Appedix3A: Summary of Kantha Bopha Hospital (KBH)

Background

Currently there are five Kantha Bopha Hospitals (KBHs): the first one was restructured and opened in 1991; the second hospital, built on the Royal Palace's plot of land granted by the late king of Cambodia, his majesty Norodom Sihanouk, was inaugurated in 1996; the third hospital, known as Jayavarman VII, was built on a plot of land granted by the Prime Ministry of Cambodia, Samdach Akkak Moha Sena Bat Dey Dek *Cho Hun Sen,* was opened in 1999; the forth was an extension of the first hospital, as it had become too small and two of its three buildings had been deteriorated, was inaugurated in 2005; and the fifth hospital was opened in 2007 when the other three hospitals in Phnom Penh had become overcrowded. The four hospitals in Phnom Penh provide free healthcare services to all children aged under 15, whereas the one in Siem Reap also includes maternity services in addition to pediatric services. In the past decade, the hospital in Siem Reap has been extended five times. KBHs are the biggest and renown pediatric hospitals in the country. The hospitals have laboratories, blood bank, intensive care units, and diagnostic units equipped with CT scanner that can produce 128 slices per minute.

Services and Volumes of Patients

KBHs provides both outpatient and inpatient services. Most children who are severely sick in Cambodia are referred to KBHs because the hospitals are well equipped and have experts that can handle complicated cases. The founder of the hospitals, Dr. Beat Richner, claims that KBHs have hospitalized 85% of severely sick children in Cambodia. Everyday there are around 3000 to 3500 ill children and pregnant women coming to the hospitals for health services. As of 2015, the hospitals provided outpatient services to 14.8 million children, inpatient services to 1.5 million children, pregnancy control services to 1.4 million women of productive age, and maternity services to 0.19 million mothers. Table 1 presents the number of patients by types of services provided, while Figure 1 shows the percentage change of the number of children being hospitalized and the deliveries compared to previous year since 1994. From Table 1, the number of outpatients and inpatient visits has been fluctuating, whereas the number of deliveries has been rising. The rising number of patients at KBHs attributes to three main factors: more roads being built nationally, thus patients can easily travel to the hospitals; corruption deteriorates public health systems, so people skip PHF and jump to KBHs; and disease outbreaks, for example, during heavy flooding or rainy season.

Governance and budget of the Hospital

KBHs are treated as government hospitals, but autonomously managed by Kantha Bopha Foundation (KBF), established in Zurich in 1991. Dr. Beat Richner is the head of the foundation. The foundation is governed by board of directors, which consists of 11 members. All of them are Swiss. The spending each year is audited by PriceWaterHouseCoopers AG, one of the biggest auditing firms in the world. The hospitals are, a separate independent department, integrated in the MoH since 1994. All statistics and activities are sent to the MoH monthly. The KBH runs smoothly with high collaboration from Cambodian employees. All of the staff are Cambodians, except Dr. Richner and Dr. Denis Laurent, the head of Laboratory Unit.

KBHs have been able to provide free health services to Cambodian children and women of reproductive age in the past two decades because Dr. Richner has been able to raise private funds to cover about 80% to 85% of the total running cost. The Cambodian and the Swiss governments contribute about 10% to the total cost each. However, from 2016, the Cambodian government increases its contribution to USD 6 million a year, while the Swiss Government maintains the same amount of contribution. The Cambodian Red Cross and Bayon Foundation also contribute USD 1 million each to the foundation every year. The hospitals will receive two dollars from each ticket sold to foreign tourists who come to visit Angkor Wat temples from February 2017. As shown in Table2, the budget for the five hospitals has increased from CHF 19.6 million in 2011 to CHF 40.1 million in 2015. The increasing cost is partly due to the continued expansion of the maternity services in Siem Reap. It is worth-noting that the blood stream of these hospitals has hung solely on Dr. Richner's ability to raise fund from outside.

Human Resource Development and Collaboration with other Health Institutes

Unlike other public health facilities, the foundation has the authority to recruit health workers by themselves. This special treatment was granted by the late king in 1995 to settle health workers' shortage due to the mass increase of patient volumes, and at that time, the MoH could not supply enough trained personnel to meet the rising demand. Leveraging this special treatment, Dr. Richner has begun to hire young Cambodian doctors and interns with great intelligence and motivation to work for his hospitals. The newly recruited doctors are trained by the senior doctors in a most professional and colloquial manner. On top of that, the hospitals have collaborated with the Children's Hospital in Zurich where

colleagues come to Cambodia each for a week to teach their sub-specialty, thus the colleagues in Cambodia have the same level of skills as the pediatricians in the Switzerland. Further, they also have had a long-term cooperation with John Hopkins institute in Baltimore for cardio surgery. In addition to opportunity to build up their professional knowledge, the foundation also pays decent salaries for their 2500 employees, thus they do not have to work for other health facilities or take money from the patients. Most money raised is spent for treating Cambodia children and paying Cambodian staff.

Further, KBHs also have a status as Cambodian University Hospitals where the senior staff and colleagues are the professors and lecturers at the University Health Sciences (UHS). The UHS together with the nursing college, which is affiliated with the UHS, sends interns to KBHs annually. The interns receive both on the job training education and stipends which are paid by the foundation.

Table1: Number of Children Treated and Deliveries at Kantha Bopha Hospitals

KBH	OPD	IPD	Maternity in-patients
2014	696,329	122,086	19,361
2013	687,083	119,945	17,747
2012	776,625	150,136	16,974
2011	800,000	120,000	16,512
Total	**2,960,037**	**512,167**	**70,594**

Source: Annual reports of KPH 2011-2014

Table2: Budget from 2011 to 2014

KBH	Other Donors	Govt (CHF)	SDC (CHF)	Total (CHF)	Surplus (CHF)
2014	34.5 (83.3%)	2.9 (7.0%)	4.0 (9.6%)	41.4	6.4
2013	32.5 (82.5%)	2.9 (7.3%)	4.0 (10.2%)	39.4	6.2
2012	32.5 (77.7%)	2.9 (11.3%)	3.0 (11.0%)	26.5	1.8
2011	13.8 (70.4%)	1.8 (9.1%)	4.0 (20.4%)	19.6	9.6

Source: Annual reports of KPH 2011-2014
Note: budget is in million

Figure 1: percentage change in the number of hospitalizations by year

Source: http://www.beat-richner.ch/index.html

Appendix 3B: Summary of Angkor Hospital for Children (AHC)

Background

A renowned Japanese photographer, Kenro Izu, established a not-for-profit pediatric hospital known as Angkor Hospital for Children (AHC) in Siem Reap province in 1999. The ultimate goal of AHC is to generate a replicable model of a healthcare institute that gives high quality care to all Cambodian children. At the beginning, the hospital provided only outpatient services with less than 30 health workers; most of them were volunteer expatriates. Later, services and facilities have been expanded gradually. The operating theatre emerged in 2002; heart surgery started in 2008; a satellite clinic, located 35 kilometers from the center of the province, was established in 2010 in Sotnikum district; and the expansion of the emergency room/intensive care unite was completed in 2015. Currently, the hospital has outpatient department, emergency room/intensive care unit, social work unit, physiotherapy unite, dental care unit, and HIV/home care unit.

Services and Volumes of Patients

Until 2016, all health services at ACH were free of charge. The ER/ICU unit can accommodate about 14 patients per time. If all beds are fully occupied or children are in severe conditions, they will be referred to KBH which is only a few kilometers from each other. Including the satellite clinic, the hospital has about 105 beds and employs more than 500 staff members. ACH treats 500 outpatients each day. In 2014, AHC treated 168,226 children, of which 125,732 were outpatients. Besides, AHC's Social Work Unit (SWU) also provides counseling to families who need support both at the hospital and at their homes. The target populations are survivors of sexual and physical abuse, and abandoned or chronically ill children. In 2014, 964 patients and their families received counseling from SWU, accounting for about 1,469 counseling sessions. In addition, AHC's HIV/Homecare Unit also provides in-home care services for children who need regular medical attention but have difficulty or not able to travel to ACH. The services include treatment, follow-up assessment, social support, counseling, and health education for children and their families.

Governance and budget of the Hospital

AHC is governed by a volunteer board of directors consisting of 13 members, of which three are Cambodians. The role of board of directors is to develop strategy and policy, as well as to monitor the hospital's activities. Board of directors oversees education committee, finance and operation committee, medical oversight committee, and development committee. Board members are required to meet four times a year. In early 2015, the hospital management structure was reorganized. The executive director position was replaced with a six-member executive committee (ExCom), who jointly run the hospital. The ExCom team

consists of managing director, hospital director, chief operation director, chief business officer, education director, and public health service director. The Excom team meets weekly to discuss general activities of the hospital, and each committee has to convene at least three brief meetings a week with their members to monitor work progress. For quality assurance, quality of care is assessed by an independent team from abroad, whereas the hospital spending is audited by a firm in Hong Kong. For transparency, drugs are purchased through formal bidding. Drugs are ordered quarterly from local pharmacies and every semester from abroad.

The budget to run AHC comes from donors, oversea government grants, fund raising activities, in kind donations, and provision of medical trainings. This hospital does not receive monetary support from RGC, but get some drugs from the MoH. The total expenditure for 2014 was approximately USD 6.34 million, of which 70% was spent on health services, 17% on education programs, and 13% on overhead charges (see table 2 for detail). As shown in Table 4, the cost of treatment per person in each unit in 2013 and 2014 were not quite different. For 2014, the healing costs were estimated to be around USD 6.72 per person for outpatient, USD 167.13 per person for inpatient, and USD473.79 per person for surgical procedure and stay.

Human Resource Development and Collaboration with other Health Institutes

Starting with just around 30 personnel in 1999, AHC now has 507 health and non-health personnel. Staff is recruited through public announcement. New doctors and nurses are required to go through classroom and bedside trainings before providing services to patients. The Medical Education Center (MED) is in charge of organizing training programs for junior medical doctors and weekly medical lectures for medical staff. The trainings are conducted by expats and senior local doctors. Before becoming a pediatrician, as required by AHC, junior doctor has to pass 13 courses in three years. The nursing staff constantly upgrades their knowledge through weekly nurse-led presentation and topic-specific physician-led lectures. To maintain the quality of care at AHC, one nurse is assigned to 5 patients, and one doctor is in charge of 10 patients maximum.

AHC also serves as a training site for Integrated Management of Childhood Illnesses Program of the World Health Organization (WHO). Besides, it also works in close collaboration with the MoH to develop and to implement ethical guidelines and best treatment practices for pediatric care for public health facilities. With this collaboration, AHC provide both in class and on the job trainings to government health workers. AHC also accept interns from medical universities in Cambodia for bed site training. Further, AHC also works closely with NGOs across the country to improve children’s accessibility to a continuum of high quality care.

Table 3: Revenue and Expense 2013 and 2014 at AHC

ACH	Revenue	Expense on services	Expense on Education Programs	Overheads	Operating Expenses
2013	6,015,949	3,626,331	855,249	690,103	5,601,978
2014	6,816,922	4,443,168	1,056,825	843,154	6,434,147

Source: AHC annual reports 2013 and 2014
Note: All figures are in U.S. Dollar

Table 4: Cost Analysis in 2013 and 2014

Health Services	Unit	Average cost per unit (2013)	Average cost per unit (2014)
Outpatient Department	Visit	6.5	6.7
Emergency Room	Visit	13.3	9.2
Satellite Clinic	Visit in OPD+ER+IPD	30.0	30.0
Inpatient Department	Patient Stay	149.3	167.3
Surgical Department	Surgical Procedure	333.5	473.8
Intensive Care Unit	Patient Stay	798.7	898.7
Neonatal Unit	Patient Stay	NA	572.0
Dental Clinic	Visit	7.9	10.3
Eye Clinic	Consultation	17.0	20.4
Physiotherapy	Session	16.38	11.1
Ultrasound/ X-ray Unit	Test	10.5	9.4
Laboratory	Test	3.1	3.3

Source: Annual reports of AHC: 2013 and 2014
Note: All figures are in U.S. Dollar

Appendix 3C: Sonja Kill Memorial Hospital (SKMH)

Background

The Sonja Kill Memorial Hospital (SKMH), a charity hospital with the vision to improve health status of Cambodian children and expectant mothers, begun to provide outpatient services in Kampot province, a coastal region, in 2012. The hospital complex consists of 27 buildings on a 70,000 square meter plot of land granted by RGC through the intervention of the late king, his majesty Norodom Sihanouk. Since opening, the hospital has been expanded gradually. The emergency and inpatient department emerged in 2013; maternity department was opened at the end of 2014; and the surgical department began in early 2016. Currently, the facility has inpatient, outpatient, pediatric, and maternity clinics together with laboratory, pharmacy, and physical therapy services.

Services and Volumes of Patients

At SKMH, there are 33 doctors and 60 nurses. The hospital has 124 beds. Bed occupancy is about 50% most of the time, but during the holiday, all are occupied. It has one fully equipped ambulance to refer patients in critical condition to other hospitals. At the moment, the hospital has yet been able to conduct a complicated surgery due to lack of human resource and funding. Each day, SKMH has around 120 to 150 outpatient visits. Since opening till 2015, it provided consultations to 93,077 patients and hospitalized 34,191 patients. SKMH's patients are not from Kampot province alone, but from seven other provinces. Furthermore, the hospital also has homecare program to support patients who are unable to visit doctors at the facility on a regular basis, and also provides public health education by handing out useful information materials to local communities.

Governance and budget of the Hospital

The SKMH is governed by four-board of directors, of which two are from Sonja Kill Foundation (SKF) and the other two are from HOPE worldwide. Dr. Cornelia Haener, the executive director, administers the daily management of the hospital. With this competency, she has full authority in making decision related to hospital expenditure, improvement of hospital facilities, staff recruitment, and staff development. The approval from board members is required only when the expenses are higher than the threshold (USD 20,000). For long-term financial sustainability concerns, SKMH charges user fees for health services, but patients have to pay based on their affordability. With this model of payment arrangement, the hospital depends less on external funding sources to support programs. The amount of co-payment is accessed by social affair office using an assessment tool adapted from the MoH and GIZ. As shown in Table 5, the revenue collected from patients increased from USD 698,418 in 2014 to USD 1,453,565 in 2015. These revenues covered 59% of the spending in 2014 and

69% of the spending in 2015. This model of payment allows the hospital to provide free healthcare services to about a quarter of patients. In the next three years, the hospital is financially secured.

Human Resource Development and Collaboration with other Health Institutes

For skill development, SKMH has expending training modules including modules in obstetrics, surgery, and neonatology for medical professionals. At the same time, the hospital has worked with international volunteers to develop family practitioner curriculum for general doctors. At SKMH, medical staff has to attend training one hour each day to upgrade their knowledge as well as to catch up with new treatments guidelines. The sessions are led by senior medical staff or by expat volunteers. Further, local staff also have an opportunity to go through training abroad with the condition that they come back to serve the hospital at least two years. If not, they face monetary penalty.

The SKMH works closely with provincial health department in achieving Millennium Development Goals (MDG) for mother and child health. The hospital also receives some vaccines, vitamins, and contraceptive kits from the provincial referral hospital. SKMH also send some tests to provincial referral hospital to analyze as its lab is bigger and this also allows RH to generate additional income for operational costs. In addition, the SKMH also accepts medical interns from University Health Science (UHS) as part of their contribution to improving health human resources in Cambodia.

Table 5: Revenue and Expenditure at Sonja Kill Memorial Hospital (SKMH) in 2014 and 2015

Items	2014 (Unaudited)	2015 (Unaudited)
Net Patient Revenue	1,009,833	698,418.
Program Expenses	(1,453,565)	(1,184,618)
Net from Operations	**(443,732)**	**(486,199)**
Depreciation	(82,709)	(43,936)
Management Expense	(50,382)	(34,898
Non Operating Income (capital contributions)	-	694,918
Grant income for operating expenses	625,682	1,035,600
Net Income	**48,857**	**1,165,490**

Source: Annual report of SKMH in 2015
Note: All amounts listed are in U.S. dollars

Appendix 4: Trends of Healthcare Seeking Behaviors and Number of Sick Population: CHDS 2005-2014

Table 1: Prevalence and Severity of Illness or Injury in the Past 30 Days of Household Members: 2005-2014

Age	Not ill or injured	Slight	Moderate	Serious	All illness	Number of persons
2014						
0-9	83.1	9.4	5.8	1.1	16.5	16,182
10-14	93.8	3.0	2.6	0.6	6.2	8,178
15+	87.5	4.5	6.3	1.5	12.5	49,625
2010						
0-9	86.5	13.5	5.7	1.5	13.5	16,762
10-14	95.2	1.7	2.2	0.9	4.8	8,998
15+	90.6	1.7	4.9	2.8	9.4	51,160
2005						
0-9	80.6	11.0	6.7	1.6	19.4	17,516
10-14	92.5	3.8	2.9	0.7	7.5	12,697
15+	84.5	6.2	7.3	2.0	15.5	42,797

Note: Figures were calculated using Cambodia Health Demographic Surveys: 2005-2014.

Table 2: Prevalence of Ill or Injured Household Members Who Sought Treatment in the Past 30 Days: 2005-2014

Age	Treatment (%)	No treatment	Number of injured population
2014			
0-9	2,606 (96.9)	82 (3.0)	2,688
10-14	495 (97.4)	13 (2.6)	508
15+	5,751 (94.1)	361 (5.9)	6,112
2010			
0-9	2,159 (95.4)	103 (4.5)	2,262
10-14	415 (95.8)	24 (4.2)	433
15+	4,352 (90.9)	434 (9.1)	4,786
2005			
0-9	3.125 (91.8)	279 (8.2)	3,404
10-14	734 (90.3)	79 (9.7)	813
15+	6,215 (89.7)	711 (10.3)	6,926

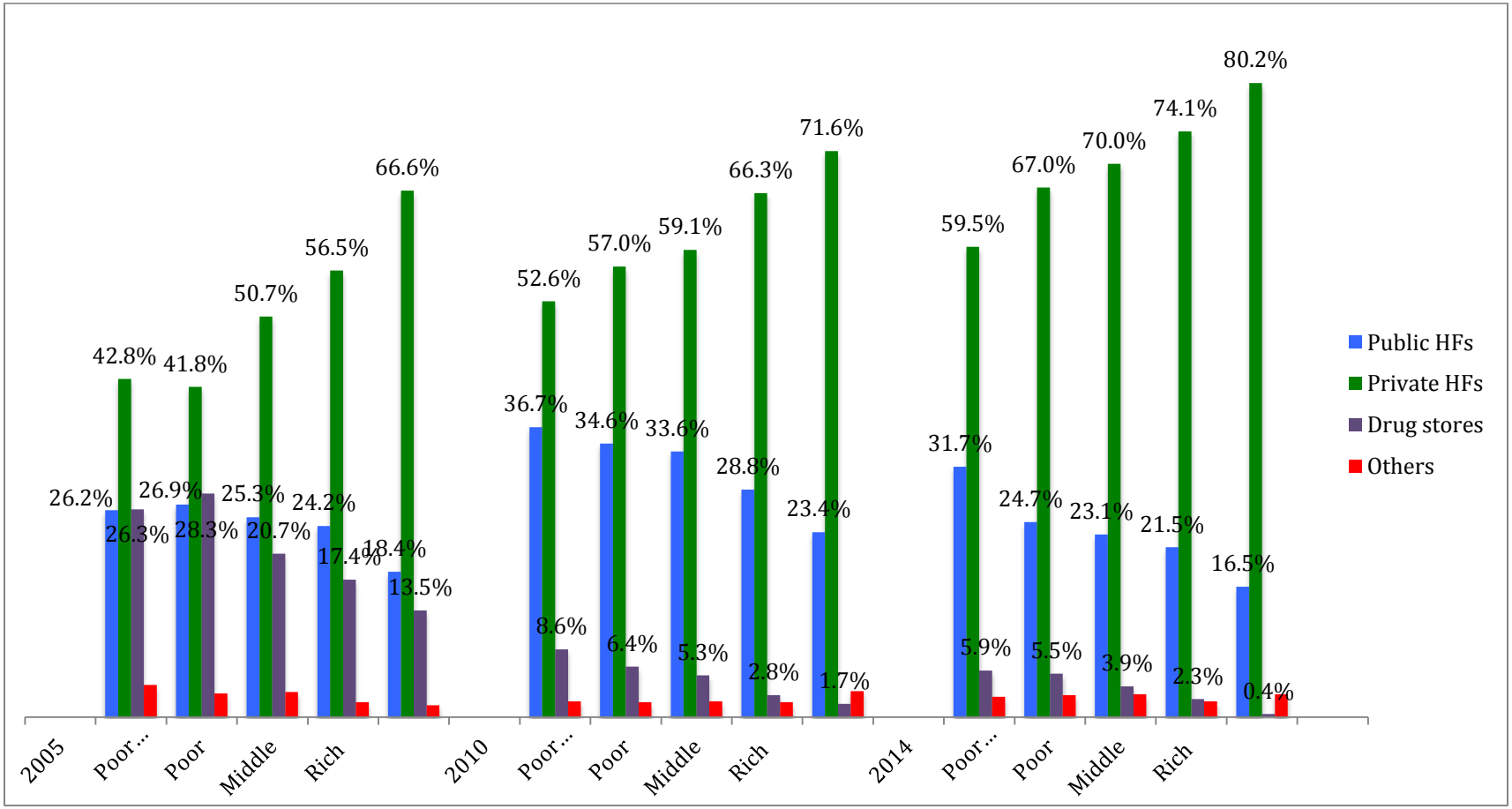
Note: Figures were calculated using Cambodia Health Demographic Surveys: 2005-2014.

Table 3: Place to Seek Treatment: 2005-2014

Age	Public Health Facilities (%)	Private Health Facilities (%)	Pharmacies/drug stores (%)	Others (%)
2014				
0-9	25.6	69.1	4.1	1.0
10-14	23.0	67.7	5.7	3.6
15+	22.1	71.7	2.9	3.3
2010				
0-9	35.7	57.9	5.6	0.8
10-14	29.9	61.2	7.2	1.7
15+	29.8	62.6	4.6	3.0
2005				
0-9	28.0	44.4	25.5	2.1
10-14	21.7	48.8	28.0	1.5
15+	23.6	53.2	19.7	3.5

Note: Figures were calculated using Cambodia Health Demographic Surveys: 2005-2014.

Figure 1: Choices of Health Facilities According to Five Wealth Quintiles



Note: Figures were calculated using Cambodia Health Demographic Surveys: 2005-2014.

Calculation of Number of Children Aged 0-14 Who Had Been Treated at Health Facilities in 2014

For these estimates, we used data from Cambodia Census 2013 and CDHS 2014. Although the data are one year apart, there would not be much variation between 2013 and 2014. Using these two data sets only provide rough estimates of population who had been treated in 2014 according to respondents' response to a question whether they had sought treatment in the past 30 days when falling sick. The census in 2013 indicated that there were around 4,314,918 population aged 0-14 in Cambodia (29.4% of the total population). In the CDHS 2014, approximately 22.7% of the respondents aged 0-14 reported that they had been sick in the past 30 days, and the majority of those said they had sought treatment (97%). If we assume that 22.7% of the respondents were sick and 97% of those sough treatment, there were around **979,486** children who had been sick and 950,101 children who had sought treatment in 2014 nation wide. Of total, about 25.6% used public health facilities (PHFs). In this case, PHFs treated about **243,225** children. This figure included all sorts of illnesses from minor to severe. If we take out the minor illnesses, there were about **111,566** children who had been sent to PHFs in 2014. In addition, if only severe cases are considered, there were around **18,778** children who had been sent to PHFs.

It is worth noting that the figures above included only children aged 0-14 to align with the cutting point in census data, but KBHs treat children from birth to 15 year old. The figures above are slightly higher if we include children aged 15 years old. We did not have detail data of the number of children treated in KBHs by age in 2014 to make an adjustment. However, we assume that the different would not be huge as the gap is not large. In 2014, KBH treated about **696,329** children, and the estimates above showed that there were around 950,101 sick children who had been treated in 2014 nation wide. With this figure, KBHs treated about **73.3%** of sick children nation wide. Here we used the total number of sick children to calculate the proportion of sick children treated at KBHs instead of number of sick children treated at PHFs, as we are not sure whether respondents classified KBHs as public, NGO, charity, or private hospitals in CDHS. Many Cambodians do not know that KBHs belong to the Cambodian government. They treat these hospitals as non-profit hospitals.

These estimates might overestimate the true values. It depends on how each hospital counts/registers their patients. For example, some patients may come more than one time in a week or a month. Whether patients are counted based on number of visit or per person per whole treatment. Data from CDHS 2014 counted per person per visit in the past 30 days. This is only a rough estimate.