BOSTON UNIVERSITY SCHOOL OF PUBLIC HEALTH
DEPARTMENT OF INTERNATIONAL HEALTH
CULMINATING EXPERIENCE COVER PAGE

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CULMINATING EXPERIENCE TITLE:
Strengthening Cambodia's Health System through Contracting of Health Centers

ABSTRACT:

Background: In order to meet national health targets and Millennium Development Goals, the Royal Government of Cambodia will need to make significant changes to its health service delivery system. Lack of adequate funding and qualified staff are the major obstacles preventing the government from providing sufficient healthcare coverage to its population.

Methods: This policy brief reviews the current literature on contracting out primary health care in various countries, with particular emphasis on Cambodia's pilot contracting study, which began in 1999. In addition, the results of a recent costing study of Cambodia's health centers are analyzed, in order to determine whether contracted facilities perform better and provide higher-quality healthcare than government-run facilities.

Findings: The results of both the pilot study and the health center costing showed an increased delivery of services per capita in facilities contracted by outside organizations. Government-run health centers were found to deliver fewer services per capita, at a higher unit cost.

Conclusion: Contracting service delivery to private organizations is currently a viable solution to Cambodia's healthcare crisis. Longer-term, sustainable solutions will require the Cambodian Ministry of Health to procure significantly greater funds to compensate healthcare workers appropriately and provide the resources necessary to deliver quality healthcare.

CE ADVISORS: Jennifer Beard and Rich Feeley **DATE:** 17 December 2008

MEMORANDUM

DATE: 17 December 2008
TO: Cambodian Ministry of Health
FROM: Zina Jarrah
RE: Strengthening Cambodia's Health System through Contracting of Health Centers

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After decades of brutality and destruction, the Kingdom of Cambodia is still struggling to rebuild. When the repressive Khmer Rouge regime was finally driven out of power in 1979, only fifty doctors remained in the country. As a result, the health system—which encompasses everything from broad national programs to hospitals to provincial health centers—has required significant reconstruction to meet the needs of Cambodia's burgeoning population. The situation in Cambodia continues to be dire, particularly in the rural areas, inhabited by an estimated 85-90% of the population.[1] Access to quality health care remains a challenge, in a country where provincial health centers serve as the primary health care facilities for the rural population. The high rate of mortality for children under five years of age—76 per 1000 in urban areas, 111 per 1000 in rural areas—demands immediate attention.[2] Improving the quality of, and access to, health care in the provinces is therefore a priority.

This policy memo will begin with a review of the current system of government-supported health centers. Next, an in-depth analysis of the literature will be presented, paying particular attention to a health center costing study undertaken by Management Sciences for Health (MSH), in conjunction with the Cambodian Ministry of Health (MOH). Finally, based on the findings from this research, the memo will recommend a strategy of contracting health care services to non-governmental organizations (NGOs). In order to meet its targets for health indicators in 2015, the Cambodian MOH needs to re-structure the management of its health centers; this report will assess the present healthcare situation and make feasible suggestions for the future.

The Current State of Health in Cambodia

While Cambodia has clearly made monumental strides in recent years, it remains one of the poorest and least healthy countries in Southeast Asia. The life expectancies of men and women are 59 and 65 years, respectively; and the under-5 mortality rate of 141 per 1,000 is mainly due to malnutrition and communicable diseases.[3] These numbers are high even within the Southeast Asian region—Thailand and Vietnam have under-5 mortality rates of 21 and 23, respectively.[4,5] The top causes of death in Cambodia for all ages in 2002 were, in order of magnitude: HIV/AIDS, TB, diarrheal diseases, perinatal conditions, and respiratory infections.[3] The majority of child deaths are due to a few preventable and treatable conditions, all of which have been targeted by the MOH, in line with the child survival Millennium Development Goals for 2015.

Currently ranking 85th among the 108 developing countries included in the Human Poverty Index[6], Cambodia's total health expenditure has been estimated to be around 30 USD per capita per year[7]. By comparison, the country with the highest spending on health care per capita, the United States, spent 6,714 USD per person in 2006.[8] Of Cambodia's total health expenditure, an estimated 90%—one of the highest proportions in the world—is accounted for by private

expenditure, most of which is paid out-of-pocket.[9] Conversely, the use of public health services is very low, although direct support from NGOs to certain services has been shown to increase utilization in some areas.[10]

In 2007, the national average for the Cambodia's met need was 49%—in other words, 51% of the health services needed by the entire population were not actually received.[11] In response to this situation, the Cambodian MOH, with assistance from several key donors, has developed an overarching strategic plan for the health sector for the years 2008 through 2015, called the second Health Sector Plan. Separate strategic plans for priority programs, such as Child Survival, Reproductive Health, and Communicable Diseases, have also been developed with the support of different donor agencies. All health centers are required to provide a specific number of basic services—called the Minimum Package of Activities (MPA)—as developed by the MOH. The MPA consists of basic preventative and curative services including immunization, family planning, antenatal care, nutritional supplementation, and simple curative care for diarrhea, acute respiratory infections, malaria, and tuberculosis. Health centers are designed to provide services for a catchment population of around 10,000, as well as perform outreach to nearby villages.

The Health Sector Plan assumes that health centers currently have the capacity to provide all services outlined in the MPA. While maintaining adequate healthcare coverage, these health centers are expected to scale up specific priority services, such as child survival. Unfortunately, this is often not possible, as health centers are under-funded and lack necessary staff and drugs. Salaries for health workers in the public sector are low (15 USD per month), prompting these workers to apply other strategies, such as offering private medical services or charging informally in order to supplement their income.[10] At the same time, health-seeking behavior in Cambodia is often predicated on misinformation; for example, the perception that dispensing drugs is always necessary, or that intravenous drips are more powerful and thus even better than pills.[12] These issues, combined with poor quality management at a district level, have resulted in a primary health care system that is unable to deliver an adequate level of services. Perceiving this deficiency, Cambodians have found little recourse other than turning to private health expenditure.

Cambodia's rural population desperately needs increased access to health centers that are fully capable of providing the minimum package of activities at an affordable rate. The high proportion of private health expenditure reflects a lack of confidence in public facilities and an unwillingness to pay for their services. As a result of Cambodia's massive out-of-pocket spending, the proportion of households with catastrophic expenditure on health—5.02%, compared with 0.80% in Thailand—is also very high.[13] Increasing access to affordable primary care is therefore key to preventing an impoverished population from sinking deeper below the poverty line. To do so, a reassessment of the current funding policy for the national system of health centers is warranted. The majority of Cambodia's current morbidity and mortality can be prevented or treated, mostly with low-cost interventions that are available today.

Contracting vs. Government Subsidy: A Review

In recent years, an increasing number of countries have chosen contracting-out to improve the performance of their health systems. This occurs through a contractual agreement in which the

government, or purchaser, provides compensation to private providers, or contractors, in exchange for a defined set of health services for specific target populations.[14] Governments plagued by shortages of health care personnel or poor health worker incentives often look to contracting as a solution, particularly when major health initiatives such as HIV/AIDS or TB are being scaled up.

Critics of contracting posit that the administrative costs required are too high; governments that have weak capacity to deliver services may also be weak in a stewardship role; and contracting may result in further fragmentation of the health system.[15] A comprehensive review by Liu et al. of the effectiveness of contracting-out programs in a variety of countries has produced mixed results.[14] While the study found that contracting-out improved both the availability of services and increased population-based utilization rates, it was difficult to assess the effect the programs had on equity, quality, and efficiency. Results were inconsistent, and ranged from the successful implementation of contracting-out in Cambodia to less success in Bangladesh, where NGO facilities were found to be less cost-effective in delivering nutrition services when compared with public facilities.[16] Liu et al. further point out that little is known about the system-wide effects of contracting, which could be positive or negative; and that the context in which the contracting-out is implemented has an important influence on success or failure.[1414] The authors suggest that the monitoring and evaluation of contracting-out programs is imperative to ensure that the programs do not have a detrimental effect on health system-wide performance.

In 1999, Cambodia began a large pilot-test contracting primary health care in nine districts to qualified bidders, including NGOs and private firms. Contractors were required to provide all preventive, curative, and community services mandated by the MOH in the Minimum Package of Activities. The contracting was performed at the district level to allow benchmark competition between providers, and to strengthen incentives for government workers while reducing possibly harmful incentives associated with private fee-for-service provision.[12] District-level contracting also allows for the sharing of risks from health shocks without causing adverse selection, which would occur with individual insurance.[12] The strategy of contracting was chosen because it had the potential to allow the government to focus less on service delivery and more on planning and financing, as well as to utilize the private sector's greater flexibility and better morale to improve services and respond to local needs.[17]

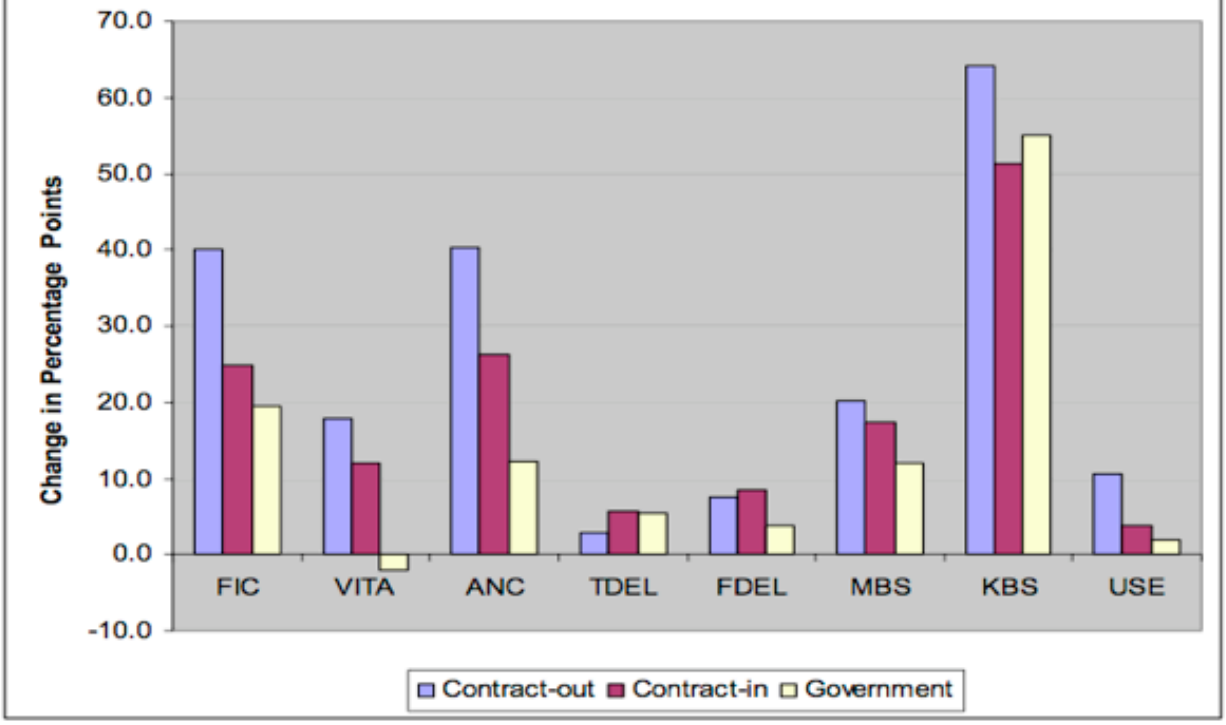
Proposals from a total of ten bidders—representing international NGOs, consulting firms, and university-affiliated groups—were evaluated with respect to technical scores and bid price. Ultimately, the winners were all NGOs that possessed the necessary experience, quality of staff, and feasible management plan.[12] The initial contracts lasted for four years, at which point the programs were assessed.

The pilot-test approached the provision of services in three different ways: contracting-out, where contractors had total authority over staff, as well as procuring drugs and supplies; contracting-in, where contractors provided management services using the existing health structure; and comparison, where the existing health management teams simply received a budget supplement.[17] The contracting-out districts received their funds directly from the Asian Development Bank (ADB), after a payment request was made by the MOH. The contracting-in districts received funds in a similar manner, but only for the management fee portion of their

budget; operating funds were supplied through normal government channels. The comparison districts continued to receive government funds as usual.[12]

In comparison with the control districts, contracting-in and contracting-out districts improved targeted health outcomes by 0.51 and 0.54 standard deviations, respectively.[12] These outcomes were measured by eight specific health indicators, which were selected as a basis for comparison between the health centers *(Figure 1)*. In addition to the improved health indicators, staff came to work regularly, partly as a result of increased salaries and partly because of better management and supervision.[18] Results also suggest that, while primary care coverage increased in all districts, people in the poorest households were more likely to receive these services if they lived in contracted districts, as opposed to government districts.[20]

Figure 1. Changes in health care coverage rates, 1997-2001 (percentage points)[19]



FIC: Full Immunization Coverage
VITA: Vitamin A Supplementation
ANC: Antenatal Care
TDEL: Total Trained Deliveries
FDEL: Total Deliveries at HC
MBS: Use of Birth Spacing
KBS: Knowledge of Birth Spacing
USE: Use of HC Facilities

It is important to note that studies also found that contracting-out was substantially more expensive to the government, when compared with traditional public service provision. With staff motivation a major challenge to providing services, the NGO contractors implemented salary supplements and performance-based incentives for their staff.[12] The average annual recurrent expenditure per capita for the contract-out districts was estimated at 3.88 USD, compared to 2.40 USD for the contract-in districts, and 1.65 USD for the government districts.[19]

These expenditures comprise NGO technical assistance; salaries (including bonuses and other allowances); and drugs, supplies, and operating expenses. Salary expenditure per capita for contract-out, contract-in, and government facilities was calculated as 1.32, 0.55, and 0.53 USD, respectively.[19] The contracted facilities' augmented expenditure clearly resulted in improved outcomes—increased access to basic health care, reduced out-of-pocket expenditure, and lower per capita private spending by under-served and poorer populations in the contracting districts.[20]

Contracting vs. Government Subsidy: Evidence from MSH/BASICS Costing[11]

In collaboration with the Cambodian MOH and the Basic Support for Institutionalizing Child Survival (BASICS) Project, Management Sciences for Health (MSH) recently performed a costing study of Cambodia's Minimum Package of Activities.[11] Models and cost estimates were developed with the intention of serving as a basis to prepare standard budgets for facilities that can be used in developing district and provincial plans. In addition to providing estimates of the resources required to implement the MPA and each of its strategies, the costing study results enable the setting of user fee levels, contract performance incentives, and resource allocation across different health centers and districts. The costing study was performed using a bottom-up, or micro-costing approach, in which the unit cost of each service in the MPA was determined. This unit cost, which also takes overhead and other indirect costs into account, is then multiplied by a health center's utilization rate to calculate a total cost. The findings of this costing study can furthermore be used to evaluate the progress made since the contracting pilot-test ended in 2001. *(For a full description of the study methodology, see Appendix B).*

The MPA costing study allowed for comparisons between individual health centers, as well as comparisons between actual and standard costs and utilization rates. Standard costs represent the cost of the resources that are required to provide each service at an ideal level of quality. These costs were determined according to the standard resources required and standard prices for those resources. As part of the BASICS costing, data from eighteen different health centers were collected and input into the costing model (*see Appendix C*). These health centers varied from being fully contracted-out, by NGOs such as the Swiss Red Cross; to being contracted-in, and receiving support from UNICEF; to being supported only by the Government of Cambodia.

An initial comparison between the three types of health centers shows significant differences in the levels of utilization for 2007. For example, the average number of services per capita provided by contracted-out facilities was 1.69, compared with 1.26 in contracted-in facilities, and 1.04 in government facilities. (*See Appendix D for complete list of costs and services per health center.*) By comparison, the national utilization rate for all health centers, based on a national population estimate of 14.3 million in 2007, was 1.16 per capita for all services. Ideally, the number of services needed for full coverage, as modeled by the MSH costing tool, would be 2.49 per capita. Thus, although both contracted-in and contracted-out facilities exceeded the national average, they still need to provide a greater number of services to meet the needs of Cambodia's entire population. In order to meet this need, contracted-out facilities in this study would have to increase their service delivery by 47%; contracted-in facilities, by 98%; and government facilities by 139%.

The MSH costing allowed for a comparison of the actual costs of the 2007 services at the health

centers. Contracted-out, contracted-in, and government facilities had average costs per capita of 2.17, 1.46, and 1.65 USD, respectively. *(See Appendix E for graphs of services per capita, cost per capita, and cost per service for each health center.)* Thus, the average expenditure per person was significantly higher in contracted facilities, when compared with government-run health centers. A comparison of cost per service also showed that contracted-out facilities provided more services than government facilities, at a lower cost. The average expenditure per service was 1.32, 1.19, and 1.68 USD, respectively. Although contracted-in facilities provided services at the lowest cost per service, on average, their performance was also assessed based on the delivery of services per capita, which was less than contracted-out facilities.

In this study, health centers that provided the highest number of services per capita, at a low cost per service, while still maintaining a high cost per capita, were considered "well-performing". Examples of health centers that fit this definition include Ang Tasom, Tram Kak, and Chrey Khamum, all of which are contracted out by NGOs. The highest number of services per capita was 2.33, delivered by Ang Tasom, and the lowest number of services per capita was 0.76, delivered by the government facility Thnal Kaeng.

Consequently, contracted health centers were found to meet a higher percentage of the catchment population's need. In 2007, contracted-out facilities, on average, met 68% of their populations' need for health services, compared with 50% and 42% for contracted-in facilities and government facilities. To estimate this need, MSH obtained normative values for the incidence of each service (for example, the percentage of the population requiring TB treatment), and then multiplied that figure by the total catchment population. This enabled an approximation of the total number of services necessary for any given population. In all cases, contracted health centers, whether located in rural or urban areas, performed better than the non-contracted government facilities.

The Case for Contracting-out Health Services

The Cambodian MOH has set ambitious targets for its second Health Sector Plan, in line with the Millennium Development Goals for 2015. At present, the country is behind on most, if not all, of the MDG targets. By contracting more health centers out to NGOs, health targets—specifically, those relating to child and maternal health—will become much more achievable.

Although contracting has received mixed results when it has been implemented in different countries around the world, its impact on Cambodian health has been overwhelmingly positive.[14] In addition, research performed by MSH Consultants, under the auspices of BASICS in Cambodia, showed that contracted health centers provided more services, and thus greater coverage, than government health centers. The recommendation of this policy brief, therefore, is that the Royal Government of Cambodia adopt contracting-out to an even greater extent throughout the country. This can be accomplished by allowing interested organizations to submit bids for contracts.

Previous experience in Cambodia has shown that contracting primary health care services using a competitive bidding approach is not only feasible, but can be carried out efficiently and transparently.[17] Using this approach will create competition between organizations and should

attract greater participation due to the previous documented successes of contracted health centers in Cambodia. The MOH will be involved with the entire process of designing, monitoring, and evaluating the contracts, ensuring that all organizations involved will focus on the best possible outcomes. Thus, instead of expending its limited resources on actual service delivery, the MOH will be able to direct its attention onto managing and funding the health system.

The Impact of Contracting on Cambodia's Current Health System

Cambodia's initial contracting pilot study drew expressions of interest from 51 different organizations, including 36 outside the country.[17] Clearly, contracting-out can have a significant impact on the delivery of primary health care services in the country, especially in the case of foreign organizations replacing government-run facilities. As with all negotiations between different parties, there is always a possibility that problems may occur. Some inherent risks involved in the contracting process are a reliance on donor funds, poor monitoring and evaluation systems, and allowing parties with vested interests to gain control over the contracting process.[21] Contracting cannot be undertaken without significant administrative costs, such as negotiating changes to the contract if unforeseen circumstances arise, monitoring performance and adherence to contract stipulations, or settling disputes.[22]

In addition to anticipating potential risks of contracting, the impact on government-run facilities must also be addressed. In previous years, contractors in contracted-out districts hired most of the medical staff that was already working there and paid them 70 to 125 USD per month; up to ten times more than their government salaries.[17] This has served to improve the quality of service drastically at contracted health centers, since staff are more likely to go to work regularly, but has also resulted in MOH staff taking leaves of absence from their own jobs to seek employment at contracted facilities. Thus, although contracting-out to private organizations can improve health conditions in Cambodia in the short-term, the MOH will also need to assess possible long-term strategies. Any sustainable solutions to Cambodia's healthcare problem will need to begin with the procurement of significantly greater funds to compensate healthcare workers appropriately and provide the resources necessary to deliver quality healthcare. At the current salary rate healthcare providers are receiving at government facilities, the performance at these facilities simply cannot improve. The MOH must therefore make the reassessment of its current salary and benefit scheme for health workers a national priority.

Contracting Health Services to Meet National Targets

An abundance of evidence exists in support of contracting in Cambodia. The MOH has proposed an ambitious Health Sector Plan, and in order to see results by 2015, a modification of the current health delivery system is required. Whereas contracting may appear to be a risky undertaking in other countries, Cambodia's groundbreaking pilot study has created the necessary confidence in both outside organizations and the MOH that contracting is both feasible and conducive to successful outcomes. In conclusion, the Cambodian government must urgently modify its health service delivery system, before health conditions begin to deteriorate.

APPENDIX A. Map of Cambodia

APPENDIX B. Methodology of MSH Costing Study[11]

The Cambodian MOH has developed a Minimum Package of Activities (MPA), to be provided at health centers and through community services. To prepare a standard cost model of the MPA service package, the study employed a modified version of the MSH Cost and Revenue Plus (CORE Plus) Analysis Tool. CORE Plus is an Excel-based spreadsheet that analyzes costs and revenues using a bottom-up, or micro-costing, approach. The tool evaluates all the costs associated with the delivery of a particular health service, taking into account the staff time expended, drug and medical supplies utilized, and laboratory tests ordered. Operating costs and indirect staff time are distributed proportionally across the health services. CORE Plus then determines the unit cost for each specific service, thus allowing for various cost and utilization scenarios to be evaluated. CORE Plus allows the user to model five different scenarios: actual services and actual costs; actual services and normative costs; needed services and normative costs; projected services and normative costs; and projected services and ideal staff.

CORE Plus relies on extensive user input to model a variety of cost and revenue scenarios. The Excel workbook contains different types of worksheets including: service practice worksheets, assumptions and data entry worksheets, calculation pages, and data report pages. The service practice worksheets are the backbone of CORE Plus as they are used to determine the standard staff time needed for each service, as well as the standard quantities and types of drugs, medical consumables and laboratory tests required. A service practice worksheet must be completed for each service offered by the health centre. Since the entire model rests on these worksheets, the information collected for each service should be as accurate as possible.

In addition to the service practice worksheets, CORE Plus requires general facility data, personnel information, number of services, and income and expenditure for each health centre. Prevalence or incidence norms are also necessary for each service, in order to compare actual services with needed services and make projections for the future. Finally, in order to model normative cost scenarios, the model requires accurate drug, supply, and laboratory test prices. In this study, the tool was adapted to fit Cambodia's specific needs regarding staff salaries and incentives, as well as sources of funding and revenue. A CORE Plus workbook was filled out for each individual health centre included in the study, ensuring maximum accuracy and specificity.

In order to estimate the cost of needed or projected numbers of services, the model uses incidence and prevalence rates together with catchment population figures to estimate the number of each type of service needed for full coverage of the community. The model can then be set to a percentage of the total need figures so that projections or targets can be used. To model the costs of the MPA, a comprehensive list of services was first established. Service delivery standards were obtained from a small team of local experts, based where possible on GOC guidelines and standards of treatment.

Of the 18 health centers in the sample, 11 were from contracting-out districts. This is because data are more easily available for those districts and because those health centers are considered more likely to have greater utilization, efficiency and quality. Of the other 7 health centers, 4 are contracted-in by international and local organizations, and the other 3 were government facilities that received no extra support.

APPENDIX C. Health Centers Costed by MSH Study

A total of 18 health centers were costed in this study: 11 contracted-out, 4 contracted-in, and 3 not supported facilities.

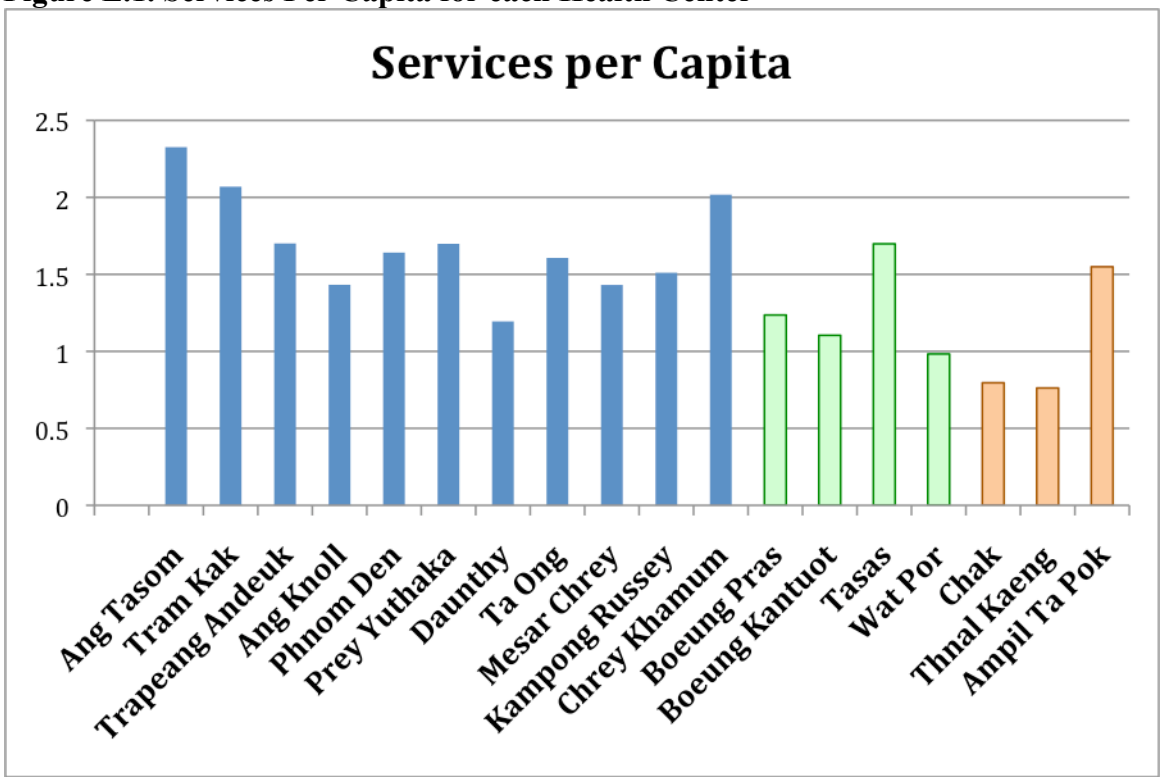
Province	Health Center	Catchment Type	Type of Support	Service Provider
Takeo	Ang Tasom Tram Kak Trapeang Andeuk	Urban Rural Remote Rural	Contracted-out	Swiss Red Cross
Takeo	Ang Knoll Phnom Den Prey Yutakha	Rural Urban Remote Rural	Contracted-out	Swiss Red Cross
Kampong Cham	Daunthy Ta Ong Mesar Chrey	NA NA NA	Contracted-out	Belgian Technical Cooperation
Prey Veng	Kampong Russey Chrey Khamum	Urban Rural	Contracted-out	HealthNet
Prey Veng	Boeung Pras	Rural	Contracted-in	UNICEF
Pursat	Tasas Boeung Kantuot Wat Por	NA NA NA	Contracted-in	RACHA
Kampong Cham	Chak Thnal Kaeng Ampil Ta Pok	Remote Rural Rural Urban	Not supported	Government of Cambodia

APPENDIX D. Total Costs, Total Services, Cost per Service and Cost per Capita for each Health Center (Currency: USD)

Health Center	Catchment Population	Total Services	Total Cost	Services per Capita	Cost per Service	Cost per Capita
CONTRACTED-OUT						
Ang Tasom	16,473	38,319	32,774.70	2.33	0.86	1.99
Tram Kak	14,906	30,849	33,073.67	2.07	1.07	2.22
Trapeang Andeuk	19,276	32,782	36,743.38	1.70	1.12	1.91
Ang Knoll	10,607	15,191	23,107.38	1.43	1.52	2.18
Phnom Den	7,239	11,881	20,269.44	1.64	1.71	2.80
Prey Yuthaka	6,095	10,351	21,487.10	1.70	2.08	3.53
Daunthy	9,528	11,380	19,105.79	1.19	1.68	2.01
Ta Ong	10,310	16,565	20,327.54	1.61	1.23	1.97
Mesar Chrey	12,585	18,012	26,380.85	1.43	1.46	2.10
Kampong Russey	16,986	25,662	21,670.28	1.51	0.84	1.28
Chrey Khamum	6,832	13,784	12,927.75	2.02	0.94	1.89
CONTRACTED-IN						
Boeung Pras	13,857	17,125	23,728.74	1.24	1.39	1.71
Boeung Kantuot	16,795	18,544	22,032.70	1.10	1.19	1.31
Tasas	19,779	33,590	30,978.97	1.70	0.92	1.57
Wat Por	10,640	10,459	13,119.07	0.98	1.25	1.23
NOT SUPPORTED						
Chak	14,178	11,285	21,105.44	0.80	1.87	1.49
Thnal Kaeng	12,247	9,332	17,515.02	0.76	1.88	1.43
Ampil Ta Pok	11,112	17,215	22,511.99	1.55	1.31	2.03

APPENDIX E. Graphs depicting Services per Capita, Cost per Service, and Cost per Capita for each Health Center

Figure E.1. Services Per Capita for each Health Center



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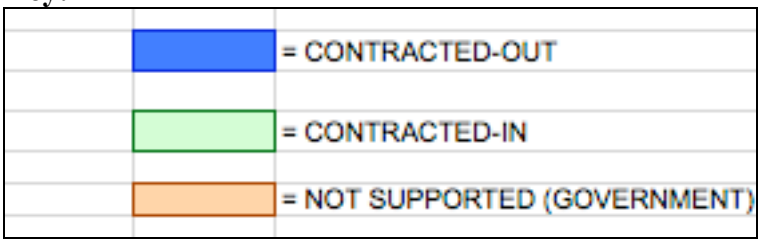


Figure E.2. Cost per Service for each Health Center (Currency: USD)

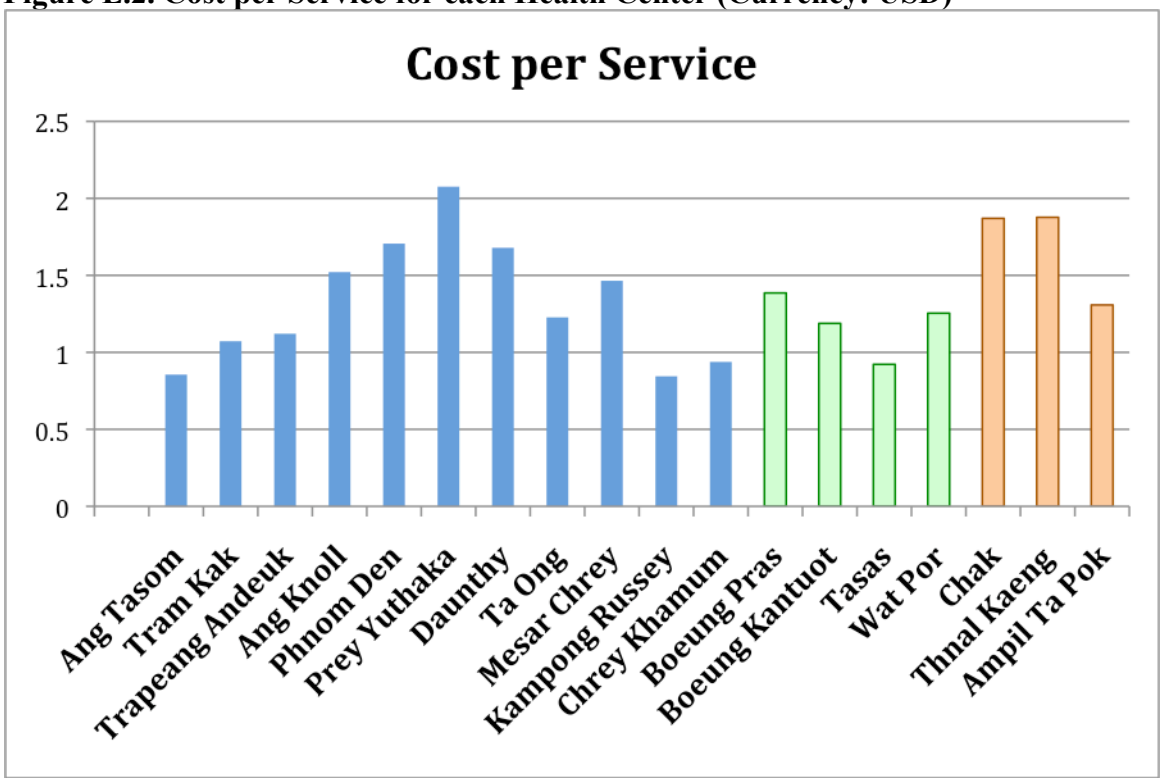
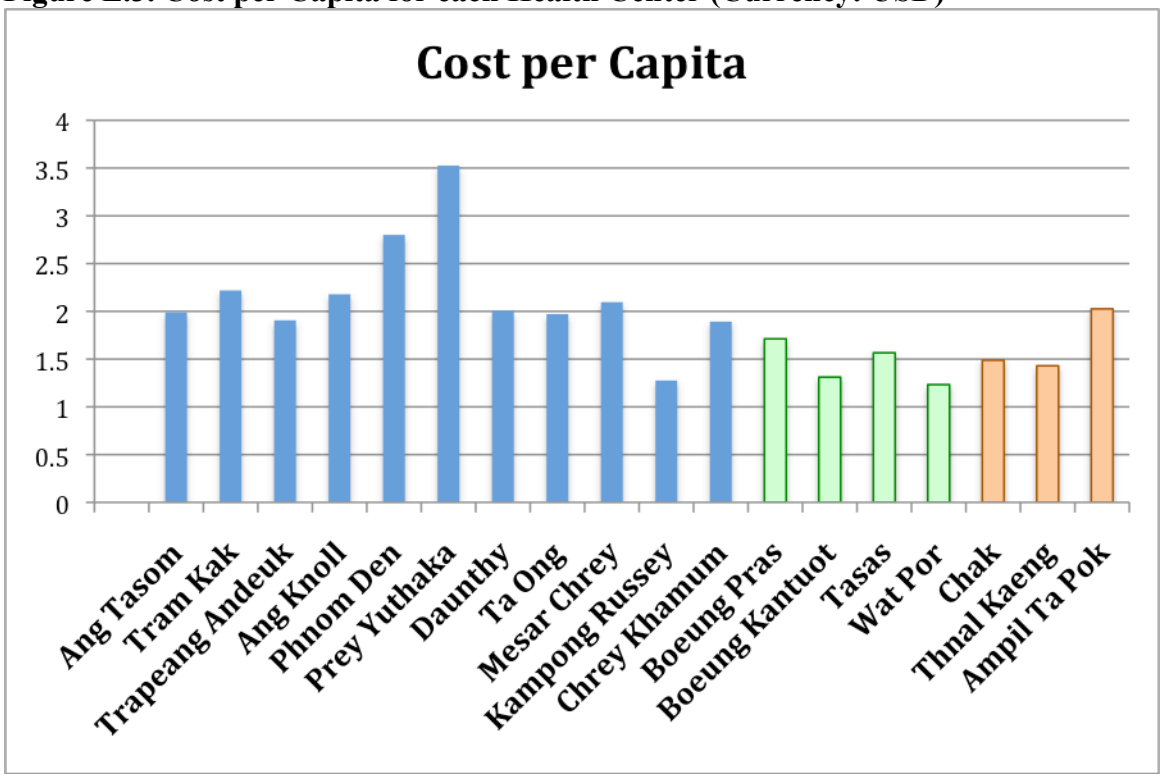


Figure E.3. Cost per Capita for each Health Center (Currency: USD)



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