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ABSTRACT

Out-of-pocket (OOP) health expenditure is defined as direct expenditure by individual patient to health care providers for getting health care services. OOP expenditure acts as a deterrent for utilization of the health care services for a considerable proportion of the population. This survey was conducted in 103 surgical patients attending the three surgical units of North Okkalapa General and Teaching Hospital (NOGTH) by using pre-tested questionnaires with face-to-face interview method. The objectives of this study are to determine OOP expenditure on direct payments for medicines (or) drugs, laboratory investigations and imaging investigations done by surgical patients and to evaluate non-medical health care expenditure in operated surgical cases in NOGTH. This study showed the variation in health care cost depending on types of surgical procedures and use of anesthesia. The unit cost incurred by surgical patients for medicines was 24,834 MMK, for esophagogastrodudodenoscopy (OGD scopy) was 20,000 MMK and for blood transfusion was no charge. The unit cost for operation was 15,219 MMK. Laboratory investigations cost 26,843 MMK and imaging investigations cost 2,810 MMK respectively. The maximum unit cost of OOP expenditure was for laboratory investigations as direct health care cost, and the second was the cost for drugs and medicines. So the major concern of OOP expenditure of operated surgical cases was represented by the cost for laboratory investigations and medicines. Major surgery consumes most with the use of general anesthesia. Among non-medical health expenditure, loss of income by the attendants was the main contribution to high OOP expenditure. Transportation costs can also be one of the barriers to access to health care. Finally, OOP health expenditure in operated surgical cases mainly depends on type of operation, the cost for laboratory investigations and number of attendants. Especially, the more increase in the number of attendants, the higher OOP expenditure. Therefore, this study can provide the basic information of health care expenditure and help the policy makers to allocate of healthcare budget effectively and efficiently among the hospitals. This study highlights the requirement of appropriate health financing system to develop and to reduce financial hardship of patients for achievement of universal health coverage.

TABLE OF CONTENTS

LIST OF ABBREVIATIONS

Anti HCV test	Anti-hepatitis C virus test
CHE	Catastrophic Health Expenditure
CT scan	Computed tomography scan
ECG	Electro-cardiogram
GA	General anesthesia
GDP	Gross Domestic Product
HICs	High Income Countries
LCoGS	Lancet Commission on Global Surgery
MMK	Myanmar Kyats
MRI	Magnetic resonance imaging
NOGTH	North Okkalapa General and Teaching Hospital
OOP	Out-of-pocket
SDG	Sustainable Development Goals
SPSS	Statistical Package for Social Science
SSS	Social Security Scheme
THE	Total Health Expenditure
UHC	Universal Health Coverage
US$	United State Dollars
USG	Ultrasonography
VDRL test	Venereal Disease Research Laboratory test
WDI	World Development Index
WHO	World Health Organization

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OUT-OF-POCKET HEALTH EXPENDITURE OF OPERATED SURGICAL CASES IN NORTH OKKALAPA GENERAL AND TEACHING HOSPITAL (2019)

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Master of Hospital Administration (MHA)

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2019

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Thesis submitted to
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Chief Examiner

Examiner (1) **Examiner (2)**

CHAPTER (1)
INTRODUCTION

1.1 Background information

A successful health system is the one that responds to its population needs through improving the health status of individuals and communities, protects the population against health threats, guards the people from catastrophic health expenditure, has equitable access to healthcare and allows people to make decisions that affect their health (Ezat Wan Puteh and Almualm, 2017).

The provision and financing of health care are key goals for health systems worldwide. Main function of health system is to provide quality health care services to the population. OOP health care expenses have been used as a marker of health system performance (Zarif-yeganeh, Kargar and Rashidian, 2019).

High-performing health systems provide strong financial protection and use a range of strategies to keep formal and informal out-of-pocket payments (household expenditures) to a minimum (Shrime *et al.*, 2016). Simply making surgery free of charges will not completely alleviate the risk of financial catastrophe to patients.

Universal health coverage is still high on the agenda of many low and middle income nations in the world. One of the major impediments in achieving universal health coverage is the lack of financial coverage leading to high out-of-pocket expenditure on health care by the households in these countries (Solan *et al.*, 2016).

OOP expenditure is operationally defined as “any direct expenditure by households, consisting of gratuities and in-kind payments, to health care providers and suppliers of pharmaceuticals, paid for therapeutic appliances, and other health care services whose primary intention is to support for the restoration or enhancement of the health status of individuals concerned ” (Ulep and dela Cruz, 2013).

Any expenditure which is spend over the health, health care and health care services is defined as health care expenditure (Kumar and Sohal, 2018). The categorization of direct costs as medical or non-medical is very important, because it helps us consider health sector-related costs and other kinds of costs separately and it facilitates decision-making and interventions (Pourreza, Harirchi and Bazyar, 2017).

OOP is the most inequitable, inefficient and regressive forms of health care financing. However, in most developing countries, it is the most important method of health care financing. It consists of direct and indirect costs. Direct costs include consultation fees, medications, investigations, procedures, hospital bills etc. Indirect costs include transportation charges, daily living cost for accompanying caregivers and loss of income due to hospitalization (Ezat Wan Puteh and Almualm, 2017).

Likely, hardship financing is occasioned by gaps in the health care facilities especially in terms of shortage of drugs and medicines, inadequate facilities for medical examination and laboratory investigations. Excellent quality of health care facilities is of primary importance for realizing the potential financial relief of free public health services (Kaonga, Banda and Id, 2019).

Out-of-pocket health expenditure for any illness is still a major problem in quality health care service. Health care financing in developing countries is mainly characterized by out-of-pocket payments for health, and the lack of proper health insurance system (Misra *et al.*, 2013).

Surgery is a major part of health system. However, surgical conditions often likely put the patients at risk for financial hardship because they can be time-critical, acute crisis and life threatening. It consumes unexpected large up-front costs. Surgical care is critical to establish effective healthcare systems in low- and middle-income countries. Mortality and morbidity from surgically correctable conditions are increasing disproportionately to the increase in many other medical conditions, yet little effort has been made to narrow this gap. Without surgical care, conditions such as appendicitis, fractures or congenital anomalies have fatal outcomes (Mackinnon *et al.*, 2018).

In January, 2014, Jim Y Kim, the President of the World Bank, declared the Bank's goals for catastrophic health expenditure: “The expected target is to reduce by half the number of people who are falling into impoverishment due to out-of-pocket health care expenses, by 2020. By 2030, no one should fall into poverty due to out-of-pocket health expenditure” (Kim, JY, 2014)

1.2 Problem statement

Access to surgery is increasingly recognized as a critical portion of a functioning health system for low and middle income countries (Farmer and Kim, 2008). Approximately 30% of the global burden of disease is surgical, and the delivery of basic, life-saving surgical care is highly cost- effective in both high-income countries (HICs) and low- and middle-income countries (LMICs)(Chao *et al.*, 2014). However, cost-effectiveness at the population level does not translate into affordability for an individual patient. In the absence of financial risk protection measures, accessing surgery may be catastrophically expensive for patients.

Among the health care services, the global burden of surgical disease has only recently been estimated. Whereas original estimation suggested that up to (11%) of global morbidity and mortality is secondary to surgical disease, more recent efforts have mentioned that it is a vast underestimate and up to (33%) of the global burden of disease is surgical (Alkire *et al.*, 2015).

The global magnitude of surgery has recently been estimated at 234 million surgical procedures annually. A very conservative survey shows that (11%) of the world's disability-adjusted life-years are from situations that need surgical interventions. However, surgical care services are unequally distributed, with only (26%) of operations in developing nations, which account for (70%) of the world's population (Ozgediz D *et al.*, 2009).

Approximately 150 million people face catastrophic health expenditure every year from medical costs alone, and many more from non-medical costs of accessing health care services. The proportion of health expenditure arising from surgical conditions is unknown. But, the impact of surgical conditions on catastrophic health expenditure must be accounted and quantified so that any financial risk protection mechanisms can appropriately incorporate with surgical conditions (Shrime *et al.*, 2016).

However, findings from the Global Burden of Disease 2010 study show that the growing burden of both non-communicable diseases and injuries includes many surgically treatable problems. Road-traffic injuries accounted for 75.5 million disability- adjusted life-years (DALYs) in 2010. The substantial and growing burden of surgically treatable disease necessitates careful assessment of a wide range of

surgical interventions to establish their priority within the expanding global health movement.

The most frequently leading causes that consume high OOP health expenditure are chronic non-communicable diseases, cancers, obstetrics and gynecology cases and surgery worldwide. The perception of surgery as expensive and complex might be a barrier to its widespread acceptance in global health efforts (Chao *et al.*, 2014).Surgical disease is among the top 15 causes of disability, and surgical conditions account for up to 15% of total disability adjusted life years (DALYs) lost worldwide (Debas HT *et al.*,2006).

Ideally, when there is alternative health financing systems provided by the government, OOP expenditure should be low especially. In countries with successful health financing mechanisms, the OOP level could achieve as low as (15 %) to (30 %) (Ulep and dela Cruz, 2013).

The burden of catastrophic expenditure is highest in low- and middle-income countries; within any country, it falls on the poor. More than half of the global population is at risk of financial hardship due to surgery. Annually, 81 million individuals, especially the poor, face catastrophic health expenditure due to surgical conditions (Kaonga, Banda and Id, 2019).

In the South-East Asia region, India stands the third rank in the latest list of countries with highest OOP health expenditure as per the WHO's World Health Statistics 2012. Nearly (60%) of the total health expenditure in India was out of pocket in 2009. In South-East Asia region, Myanmar holds the top OOP expenditure of (82 %). Bangladesh comes second with (65 %) (Pedro and Ortiz, 2018).

In Myanmar, out-of-pocket payments are the main source of health care financing, representing (74%) of the total health expenditures in 2015. Thus, Myanmar ranks as the country with the highest OOP payments for health care among the Association of Southeast Asian Nations (ASEAN). Although the level of catastrophic health care expenditure varies depending on the various circumstances, the problem of catastrophic health expenditures in Myanmar cannot be denied. The government of Myanmar needs to scale up the current Social Security Scheme (SSS) efficiently. It also urgently needs to establish a new financial protection mechanism for the population (Myint, Pavlova and Groot, 2019).

World Health Organization's (WHO) Commission on Macroeconomics and Health estimated that to provide a basic quality package of essential health care services, a minimum per capita health expenditure of about US$ 40 in 2007 prices would be needed in low-income countries. Total health expenditure (THE) in Myanmar is well below internationally agreed minimum standards: Myanmar's total health expenditure (THE) per capita including all sources (public and private) was US$ 20 in 2013. Despite recent increases, it remains the lowest among countries in the South-East Asia Region (Phone Myint, Than Tun Sein, Andrew Cassels, 2014).

The proportion of overall government budget spent on health was equally low, at (1%) between 2003 and 2011. This means that the Government spent less than (0.3%) of GDP on health in the period to 2011. More recently, the proportion of government health spending to GDP has risen to (0.76%), and the proportion of overall government budget to (3.14%). Nevertheless, this level of health investment is still insufficient to come up with current increasing demands for quality health care, let alone future demands, given rising public expectations (Aye-Nyein-Moe-Myint *et al.,* 2015).

Globally overall OOP health expenditure was (18.6%) of total health expenditure in 2013 (World Health Organization, 2015). Myanmar out-of-pocket health expenditure as a percentage of total expenditure on health was about (90%) in 2005, about (85%) in 2008, about (79%) in 2011 and (50%) in 2014 respectively (WHO, 2016). No significant change and reduction in OOP was being observed during 2005 to 2010, there was a moderate reduction of OOP beyond 2011. After that OOP in Myanmar was reduced to about 50% in 2014. However, this is well beyond WHO recommendation that out-of- pocket payments should not exceed (30%) of total health expenditure (THE) in order to avert catastrophic expenditures.

1.3 Justification

Surgery is a major part of health system. Surgical conditions are almost unexpected emergency. Unlike medical cases, surgery is an acute crisis for both the patients and families. As unexpected, there would be no savings as health care cover. Therefore, surgical conditions often likely put the patients at risk for financial hardship because they can be time-critical, acute emergency and life threatening. When a patient needs to go for surgery, either emergency or elective, it consumes the burden of health care expenditure as a whole because it costs a lot immediately and urgently. Therefore, OOP health expenditure in operated surgical cases was chosen to study with keen interest.

North Okkalapa General and Teaching Hospital is an 800-bedded tertiary hospital. It is situated in easily accessible place and the residents in and around Yangon region want to be directly admitted to this hospital. Moreover, surgical units of NOGTH could handle varieties of cases and operations. According to hospital profile (2018), surgical patients stand the third admission rate, so it provokes very special interest in operated surgical cases of NOGTH.

In public hospitals, the government cannot support all necessary items and all facilities as free of charges. The patients have to pay OOP payments for their health care services. And these OOP health expenditures have the great impact on the patients' quality health care services and their families that might sometimes fall into impoverishment. There are limited studies on determining OOP expenditure of surgical patients in NOGTH. So this study is expected to determine the out-of-pocket health expenditure among the in-patients admitted to and discharged from surgical units of North Okkalapa General and Teaching Hospital. Besides this study is intended to provide the input to the key health planners, decision makers and health economists who would require such kind of OOP information and evidence for better planning, resource allocation and way forwards to Universal Health Coverage.

CHAPTER (2)
LITERATURE REVIEW

2.1 Out-of-pocket Health Expenditure

Recently the Lancet Commission on Global Surgery (LCoGS) recommended that every country in the world measures a catastrophic or impoverishing health expenditure as a result of having an operation (Meara *et al.*, 2015).

Ideally, an optimal health care system should restrain the irrational growth in out-of-pocket health expenditures. The level of OOP health expenditures is a major indicator of an effective health care system. It should also maintain the capacity to provide equitable financial risk protection. Financial risk protection strategies should substantially reduce the amount that people spend for their health care. Heavy and constant reliance on OOP expenditures may lead the population to fall into impoverishment (Ulep and dela Cruz, 2013).

On account of health care cost, forgoing treatment is a strategy that indicates that a household confronts a real prospect of getting into financial distress due to OOPs. OOP health care expenses have been used as a marker of health system performance (Zarif-yeganeh, Kargar and Rashidian, 2019)

The analysis that costs of travel to health facilities, and related expenses, which constitute a significant portion of total health care OOP showed the main cause of financing hardships. These financial difficulties are generally higher in rural areas where distances are longer. Vulnerability to financial distress associated with unaffordable OOPs has been shown to increase with the distance from health care facility. From the policy perspective, the evidence of vulnerability to hardship financing forms of coping with unaffordable OOPs highlights the requirement for policy attention to the ongoing problem of hardship financing in health care sector (Kaonga, Banda and Id, 2019).

OOP expenditure acts as a deterrent for utilization of the healthcare services for a considerable proportion of the population. The provision of affordable health care services is generally considered a fundamental goal of a welfare state (Kumar *et al.*, 2015)

Out-of-pocket expenditures are the principal means of healthcare financing in most low- and middle-income countries. OOP expenditure acts as a deterrent for utilization of the healthcare services for a considerable proportion of the population (Sharma *et al.*, 2017).

OOP expenditure is operationally defined as "any direct expenditure by households to health care providers and suppliers of pharmaceuticals whose primary aim is for the restoration or enhancement of the health status of concerning patients" (Wagstaff and Smitz, 2019).

Out-of-pocket health expenditure includes direct expenditure on the facilities (for drugs, consultation, medical examinations, etc.), medical expenditure outside the facility (e.g. for drugs purchased at a private Drug Store) and non-medical costs associated with looking for quality health care (e.g. travel costs, food, lodging, etc.) (Kaonga, Banda and Id, 2019).One of the possible sources of high OOPs is that health staff at the primary facilities which are designated to provide health care could introduce quasi-formal user charges as an informal response to insufficient funding by the government for medical and non-medical supplies (Wim Van Damme *et al*, 2004).

Cost analysis can be divided as direct cost, indirect cost, formal cost and informal cost. Direct cost means money spent for the items which is directly related to the treatment during hospitalization. It includes medical costs, i.e. payments made to treat symptoms for medicines, blood transfusion, OGD endoscopy, operation cost and investigations (laboratory and imaging) during hospitalization. Indirect cost means money spent for the items which is not directly related to the treatment during hospitalization. It means loss of income from an inability to work or travel to a hospital, donation, envelope payment, tips money, treat, diet, accommodation for patients and attendances (Albutt *et al.*, 2018).

The categorization of direct costs as medical or non-medical is very important, because it helps us consider health sector-related costs and other kinds of costs separately and it facilitates decision-making and interventions (Pourreza, Harirchi and Bazyar, 2017).

In poor resource situations, where health care providers tend to be inadequately paid, user fees comprise of a major source of revenue for general health workers. They primarily serve to sustain the provision of health services, sometimes creating perverse financial incentives. This can contribute to incentive issues around

the implementation of exemption mechanisms. The magnitude of reliance on OOP payments varies a lot considerably across the globe. However, there is a very strong association between the level of OOP payments and the two indicators that are currently used to monitor how well a health system is performing in terms of financial risk protection: the incidence of catastrophic and impoverishing health expenditures. (Zin-Zin-Than-Wai, 2017).

Financial risk protection is at the main core of universal health coverage (UHC). Every year, 100 million people are falling into poverty and 150 million people are globally suffering financial catastrophe because of out-of-pocket expenditure on health care services. Moreover, 3.7 billion people are at risk of catastrophic health expenditure if they need surgery. Every year, 33 million of them are driven to financial hardship from the costs of surgery alone, and 48 million from non-medical costs, leading to 81 million cases worldwide (Shrime *et al.*, 2016).

Inefficient health care policy can lead people to seek treatment only when they absolutely and urgently need to. When health care fees are charged over the counter, everyone willingly pays the same amount for quality health care regardless of their level of income (Ezat Wan Puteh and Almualm, 2017).

Financial risk protection is obtained when direct payments made to achieve health care services do not expose individuals to financial catastrophe. There are many different ways of organizing the financing of health systems to ensure that a population is financially protected from facing financial hardship in paying for health services out-of-pocket, uninsured health care cost. However, health systems need to have a predominant reliance on public revenue sources: mandatory, pre-paid and pooled. Any country cannot achieve financial protection relying dominantly on voluntary pre-payment mechanisms (World Health Organization, 2015).

Global health efforts, guided in part by the Millennium Development Goals (MDGs), have focused mainly on the prevention and treatment of malnutrition, obstetric disorders, and communicable diseases. With the exception of a few surgical procedures (e.g. caesarean delivery), surgical interventions have been largely ignored. In Africa, surgery may be thought of as the neglected stepchild of global public health (Farmer and Kim, 2008). Although disease treatable by surgery remains a ranking killer of the world's poor, major financers of public health have shown that they do not regard surgical disease as a priority even though.

Developing countries have not considered surgical care a public health priority. Even though conditions that need to be surgically treated, for example, cataracts, obstructed labour, symptomatic hernias, add a significant burden of ill health to their populations. In these countries, surgery lies at one end of the spectrum of the curative medical model because of its perceived high health care cost and the limited human and material capacity available for its performance.

Equity is the fundamental principle in health financing. It is based on national solidarity and shared responsibility in which the healthy and rich share the economic burden in order for treatment to be available for both the sick and poor. It is the duty of the government to provide comprehensive, accessible and good quality healthcare for all. And it is the duty of the people is ensure that the health system is not abused and the service is used responsibly (Ezat Wan Puteh and Almualm, 2017).

2.2 Study on surveys of OOP expenditure in other countries

A study of OOP payments in households with a dengue patient, conducted in Cambodia, showed that the amount of out-of-pocket health expenditure depended mostly on where households sought care. Those who had used exclusively private providers paid on average 103 US$; those who combined private and public providers paid 32 US$, and those who used only the public hospital paid 8 US$. The public service is highly subsidized, and the fees charged in the public hospital cover only (15%) of the actual cost (Wim Van Damme *et al*, 2004).

Analysis of OOP expenditure in the Philippines conducted in 2013 revealed that the average household OOP expenditure rose by (21%) from 2009 to 2012.Out-of-pocket payments had contributed more than (50%) of total health expenditure. Medical products accounted for around (50%) of the total OOP expenditures. Of these, (64%) and (29%) were pharmaceutical products and nutritionals, respectively. Drugs or medicines continued to account for a major slice of OOP expenses (Ulep and dela Cruz, 2013).

In a study conducted in Iran, the mean OOP payment of patients ranged from 0 to 2063.41 US$. Nearly (50%) of the total costs of the prescriptions were paid by patients as OOP expenditure. The results showed that (36.2%) of households were faced with catastrophic health expenditures. The prescriptions made by health care providers were the main contribution of high OOP. Logistic regression analysis revealed that household economic status, the basic and supplementary insurance status of the head of the household, existence of individuals in the household who require chronic medical care, frequency of use of outpatient services, and out-of-pocket payment for physician visits were effective factors for determining the likelihood of experiencing catastrophic health expenditure (Grimes, Ang and Cotton, 2014).

The modeling global study conducted by Mark G Shrime *et al.,* revealed that 3.7 billion people worldwide risk catastrophic expenditure if they need surgery. Each year, 81.3 million people worldwide are driven to financial catastrophe while 32.8 million from the costs of surgery alone and 48.5 million from associated non-medical costs. The burden of catastrophic expenditure is highest in low and middle income countries especially the poor people (Shrime Mark G *et al.,* 2015).

A study done in China and India found that there were significant differences in health-care utilization rates across socio-economic groups and that these differences were related to ability to pay. Both official and informal payments acting to deter people from seeking medical assistance and once advice had been sought, from receiving the most appropriate treatment. It was suggested that urgent action is needed to ensure equity in access to health care because high OOP for health care forced the household to sell assets or go into debt to meet the costs of care (Kumar *et al.*, 2015).

In Uganda, the OOP costs incurred by patients in the public healthcare setting were devastating, with (35%) of pediatric medical, (45%) of pediatric surgical patients and (55%) of adult surgical patients incurring catastrophic expenses. Total OOP expenditure ranged from 0 to 581 US$, in which the majority of costs were spent on medical tests (42.2%) and medications (40.2%) respectively (MacKinnon *et al.*, 2018).

2.3 Study on surveys of OOP expenditure in Myanmar

In 2009, the study of cost analysis of acute coronary syndrome (ACS) patients in cardiac medical unit of Yangon General Hospital found that the hospital cost accounted for the mean of 214,479 kyats in 48 patients of ACS (median 200,000 kyats) with the range of 60,000 to 520,000 kyats. The average cost per day for ACS patient with no co-morbidities was 26,216 kyats whereas the patient with other co-morbidities either diabetes mellitus or hypertension had to spend 34,440 kyats. About (50%) of total cost was due to non-medical cost as well as (36%) was direct medical cost. There was statistically significant difference between investigation costs among different co-morbidity of ACS patients and negative correlation between days of hospitalization and cost of hospitalization per day (Inn-Kynn-Khaing, 2009).

In cost analysis study in abortion cases in Central Women's Hospital, Yangon, mean of direct medical cost was 22,511 kyats and that of non-medical cost was 27,676 kyats. Among direct health care cost, the cost for laboratory investigations was the major component. And loss of income by patients and their caregivers and the cost for meals were the main burdens among non-medical health expenditure (Aye-Mya-Mya-Kyaw, 2013).

In the study conducted on out-of-pocket payments for caesarean section deliveries among post-partum women who attended maternity wards of tertiary hospital and township hospital in Yangon region. It was revealed that various categories of OOP payments and informal payments were reported during the antenatal period, during hospitalization and at time of the discharge from hospitals. There was statically difference in the average amount of OOP payment between the hospitals; 107,427 kyats (89 US$) in the tertiary hospital and 153,041 kyats (127 US$) in the township hospital. Similarly the average informal payment is also statistically significant and amount is 25,717 kyats (21 US$) in the tertiary hospital and 79,907 kyats (66US$) in the township hospital (Min-Aung, 2015).

The study of hospital burden of road traffic injury patients in NOGTH was performed in 104 patients in 2017. The average cost for treatment was 122,037 kyats. Neurosurgical patients used highest medicine cost 1,888,370 kyats and imaging cost 1,781,200 kyats. Orthopedic patients used the highest laboratory cost 461,600 kyats and operation cost 4,428,413 kyats respectively (Htay-Htay-Hlaing, 2017).

A study of the unit cost of health care services at 200-bedded public hospitals in Myanmar conducted by Thet-Mon-Than *et al*, 2017 had concluded that the unit cost per in-patient day varied from unit to unit in Pyinmanar General Hospital (PMN GH) and 200-bed Magway Teaching Hospital (MTH). At PMN GH, unit cost per inpatient day was 28,374 kyats (27.60 US$) for pediatric unit and 1,961,806 kyats (1908.37 US$) for ear, nose, and throat unit. At MTH, the unit costs per in-patient day were 19,704 kyats (19.17 US$) for medical unit and 168,835 kyats (164.24 US$) for eye unit. According to cost structure, medicines and medical supplies was the largest component at MTH, and the equipment was the largest component at PMN GH. The surgery unit of MTH and the eye unit of PMN GH consumed most of the total cost of the hospitals. As a result of the unit costs were influenced by the utilization of hospital services by the patients, the efficiency of available resources, type of medical services provided, and medical practice of the physicians (Thet-Mon-Than *et al*, 2017).

2.4 Conceptual Framework

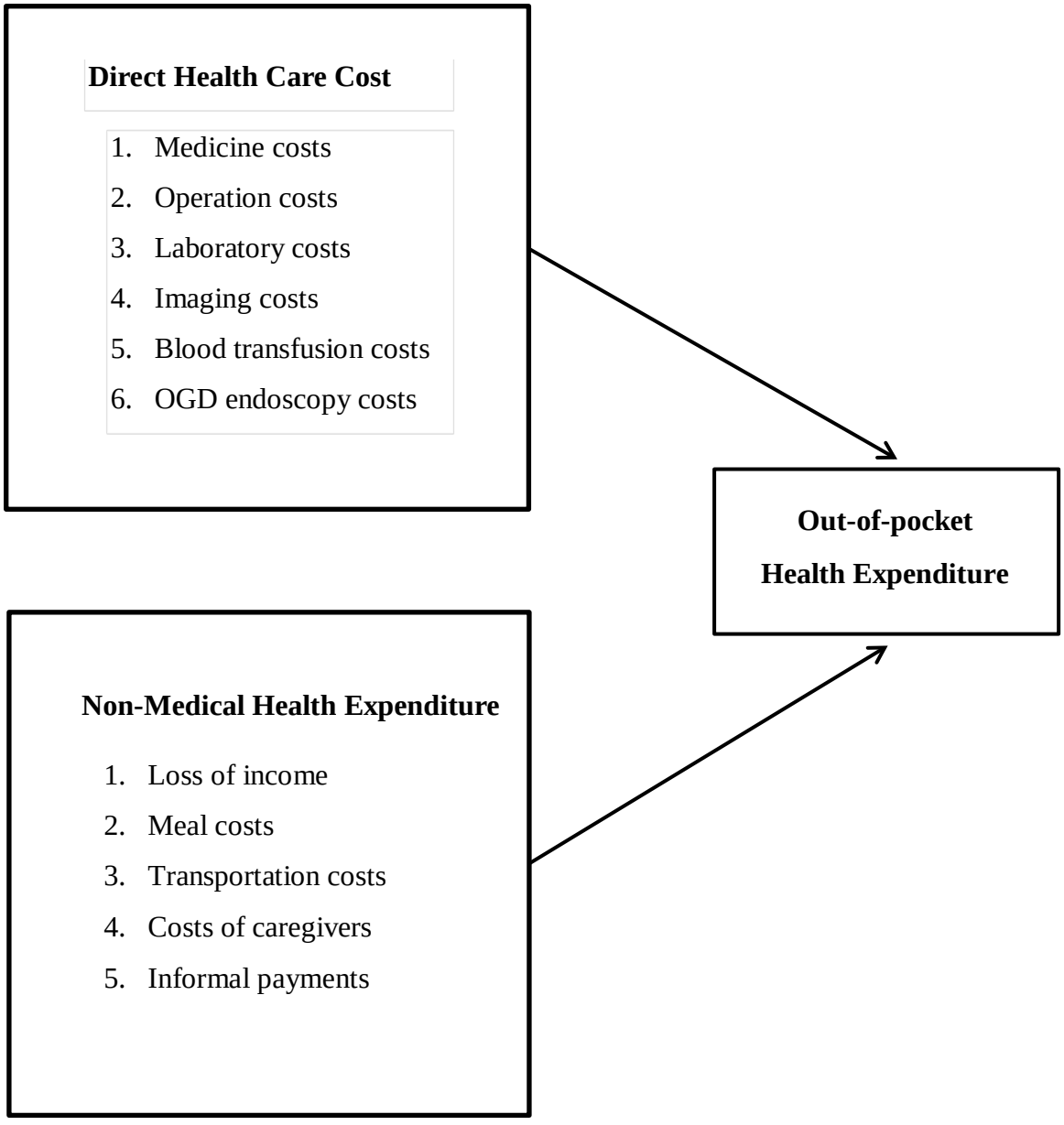

Figure (2.1) Conceptual framework of out-of-pocket health expenditure of operated surgical cases in NOGTH

CHAPTER (3)
OBJECTIVE

3.1 General objective

To study the out-of-pocket health expenditure of operated surgical cases in North Okkalapa General and Teaching Hospital

3.2 Specific objectives

1. To determine the out-of-pocket health expenditure for medicines used in the operated surgical cases in NOGTH
2. To determine the out-of-pocket health expenditure for laboratory and imaging investigations of the operated surgical cases in NOGTH
3. To evaluate non-medical out-of pocket expenditure of the study population

CHAPTER (4)

RESEARCH METHODOLOGY

4.1 Study design

Hospital-based cross-sectional study

4.2 Study period

August to November, 2019

4.3 Study area

Three surgical units of NOGTH

4.4 Study population

In-patients admitted to surgical units of NOGTH, with the review of medical records

4.4.1 Inclusion criteria

In-patients who are planned to be discharged after treatments and investigations during the data collection period

4.4.2 Exclusion criteria

Severely ill patients were excluded because they cannot participate and give necessary information for the study. Moreover, as monthly household income and expenditure are vital information for this study, some population who could not provide the information (such as monk, nun and picked up cases) was also excluded.

4.5 Sample size determination

$n = z^2 p\, q/d^2$ (Daniel, 2013)

n = minimum required sample

z = reliability coefficient (1.96 for 95% confidence interval in two sided test)

p = the proportion of surgical cases

p = 0.22 (NOGTH profile, 2018)

q = 1-0.22= 0.78

d = margin of error = 0.08

$n = (1.96)^2 \times 0.22 \times 0.78 \div (0.08)^2$

n = 103

The calculated required sample size is 103 patients.

4.6 Data collection methods and tools

Firstly, data collection was done by face-to-face interviews with the patients or patient's attendants by using pre-tested structured questionnaire including socio-demographic characteristics, and the information regarding given treatments (medicines, blood transfusion, operation, laboratory investigations and imaging investigations). Cost of medicines was calculated according to the pharmacy prices for patients' OOP expenditure. Cost of investigations done outside NOGTH was calculated by the prices of respective laboratory. For those investigations done at NOGTH, the cost was calculated by the Government price.

Secondly, reviewing of patient's charts (given medicines and drugs, blood transfusion, name of operation, type of operation and investigation results) was done to record the daily medicine use and investigations done during the course of care.

This study did not account the cost incurred by the hospital side. In-stock medicines were supplied from the hospital with free of charges. In the case of blood transfusion, the screening tests and blood bags were incurred by hospital and such the costs were not accounted in the study. Moreover, it did not include the human resources for health and infrastructure such as building, electricity, equipment, instrument and others.

4.8 Data management and analysis

After data collection, data checking was done for errors and inconsistencies. Data entry and analysis was performed by using SPSS version-16 software by calculating frequencies of each item in the questionnaire. The descriptive statistics was performed for socio-demographic characteristics and OOP of patients for medicine and investigation costs. Summary statistics was showed by frequency tables and corresponding figures such as bar chart, pie chart, etc.

4.9 Ethical Consideration

It was submitted to Academic Board of the University of Public Health for permission to conduct the presented study. All the participants were explained about the nature and purpose of the study, and the possible risks and benefits of the study. They were informed about individual right to withdraw from the study at any time without any effect on the health care services they were receiving and the information was kept confidentially. This study has been approved by the Institutional Review Board (IRB) of the University of Public Health, Yangon with Certificate of Approval No. UPH-IRB (2019/MHA/1).

CHAPTER (5)
FINDINGS

This chapter presents findings obtained from hospital-based, cross-sectional descriptive and quantitative study on 103 surgical patients, admitted and discharged at three Surgical Units of NOGTH from August, 2019 to September, 2019. Information gathered from face-to-face interviews was presented in different sections by using tables and figures wherever appropriate.

5.1 Background socio-demographic characteristics of surgical patients

Table (1) Distribution of socio-demographic characteristics of the study population at NOGTH (n=103)

Variable	Number	Percent
Age		
< 20 years	14	13.6
20-39 years	38	36.9
40-59 years	28	27.2
>60 years	23	22.3
Gender		
Male	60	58.3
Female	43	41.7
Marital status		
Single	16	15.5
Married	87	84.5

Table (1) Distribution of socio-demographic characteristics of the study population at NOGTH (n=103) (continued)

Variable	Number	Percent
Education level		
Primary school	15	14.6
Secondary school	55	53.4
High school	18	17.5
University/ Graduated	15	14.6
Occupation		
Manual worker	45	43.7
Dependent	26	25.1
Company-employee	14	13.6
Farmer	9	8.7
Government servant	5	4.9
Self-employed	4	3.9
Address		
Yangon Region	88	85.4
Other Region	15	14.6
Family members		
1-5 persons	46	44.7
>5 persons	57	55.3

Table (1) summaries the socio-demographic characteristics of operated surgical patients admitted to and discharged from NOGTH in the study. Regarding to the age distribution, which ranged from 13 to 83 years, the most common age group was between 20 and 39 years (36.9%). Of 103 surgical patients, male patients were dominant in this study, accounting for over (58%). In addition, most patients were married (84.5%) and single patients were only (15.5%). The education status showed (53.4%) had completed secondary level, the most common distribution, while primary level and university (or) graduated participants were equally involved (14.6%).

According to the distribution by occupational categories, manual workers comprised the largest group with 45 patients (43.7%). The self-employed participants contributed the smallest group with 4 patients (3.9%) and government staff with 5 patients (4.9%). In this study, it is found out that NOGTH has the main patient in-flow from the Yangon region (85.4%) and (14.6%) of patients from the other regions. Most of the patients (55.3%) had more than 5 family members and the rest (44.7%) had 1 to 5 family members respectively.

Table (2) Distribution of monthly financial status in the study population

Variable	Median (IQR)	Minimum	Maximum
Monthly household Income	450,000 (250,000-760,000)	120,000	880,000
Monthly household expenditure	450,000 (150,000-630,000)	120,000	750,000

According to the distribution of monthly financial status in this study, the median monthly household income was 450,000 MMK, minimum was 120,000 MMK and maximum was 880,000 MMK. Similarly the median monthly household expenditure was 450,000 MMK, minimum was 120,000 MMK and maximum was 750,000 MMK respectively.

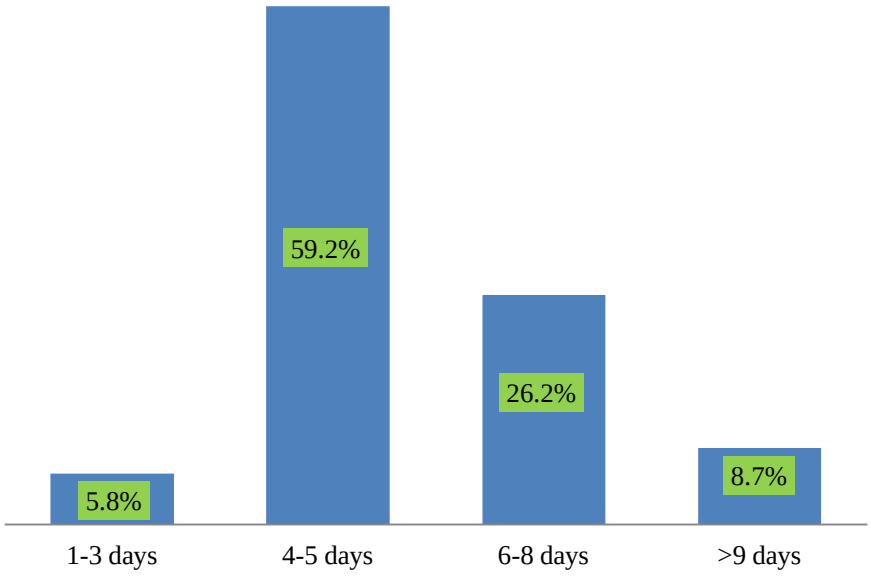

Figure (5.1) Length of hospital stays of surgical patients

According to the duration of hospital stays of operated surgical patients in this study, hospital stay of 1 to 2 days was the least with 6 patients (5.8%) and the most was 3 to 5 days with 61 patients (59.2%). While average length of stays was 5.7 days, minimum was 3 days and maximum was 25 days.

5.2 Distribution of surgical treatments and operative procedures

Table (3) Type of treatment according to the extent of operation (n=103)

Type of treatment	Number	Percent
Emergency Surgery	73	70.9
Elective Surgery	30	29.1
Total	103	100

Of 103 patients, 73 patients (70.9%) were cases of emergency surgical operation and 30 patients (29.1%) were cases of elective surgical operation.

Table (4) Type of treatment according to the onset of operation (n=103)

Type of treatment	Number	Percent
Major Surgery	25	24.3
Minor Surgery	78	75.7
Total	103	100

This table showed that among the operative procedures of the study participants, major surgery was performed in 25 patients about (24.3%), while 78 patients (75.7%) had undergone minor surgery in three surgical units of NOGTH within the study period.

Table (5) Type of surgery according to anesthesia used (n=103)

Type of surgery	Number	Percent
Surgery using spinal anesthesia	65	63.1
Surgery using general anesthesia	25	24.3
Surgery using short general anesthesia	13	12.6
Total	103	100

According to the type of anesthesia used in necessary operation, 65 cases (63.1%) were used the spinal anesthesia, 25 cases (24.3%) were used the general anesthesia and 13 cases (12.6%) used the short general anesthesia during respective operation.

Table (6) Distribution of type of operation in the study population (n=103)

Type of operation	Number	Percent
Appendectomy	49	47.6
Laparotomy and Proceed	19	18.5
Hernia and Mesh Repair	16	15.5
Perineal Operation	7	6.8
Breast Operation	6	5.8
Wound Operation	6	5.8

The distribution of the patients by types of operation is presented in table (4). Among the 103 in-patients at three surgical units, appendectomy operation treatment accounted for the largest proportion (47.6%), the other were laparotomy and proceed (18.5%), hernia and mesh repair (15.5%), breast operation (5.8%), perianal operation (6.8%) and wound operation (5.8%).

5.3 Direct health care cost from the patient side

Table (7) Direct health care costs of surgical patients at NOGTH (n=103)

Cost	Unit cost (MMK)	Median (IQR) (MMK)
Cost for medicines incurred by patients	24,834	14,000 (17,000-31,8000)
Cost for operation incurred by patients	15,219	17,000 (17,000-42500)
Cost of OGD scope incurred by patients	20,000	20,000 (0-20000)

This table revealed the cost of medicine for operated surgical patients, regarding this finding unit cost of medicine incurred by patients was 24,834 MMK, minimum cost was 2,000 MMK and maximum cost was 320,000 MMK.

The operation costs include the medicine for anesthesia, consumable items for operation and suturing materials. The unit cost for operation was 15,219 MMK, minimum cost was 0 MMK and maximum cost was 42,500 MMK. Some patients had undergone necessary operation with totally free of charges.

From the table, we found the cost of OGD endoscopy for surgical patients. Of 103 patients, OGD endoscopy had to be performed in only two patients. The unit cost of OGD endoscopy incurred by patients was 20,000 MMK and no cost incurred by hospital.

In this study population, five patients needed blood transfusion of 15 times in total. However, the unit cost of blood transfusion for surgical patients was no charges incurred by patients. Any patients did not need to pay out-of-pocket payments.

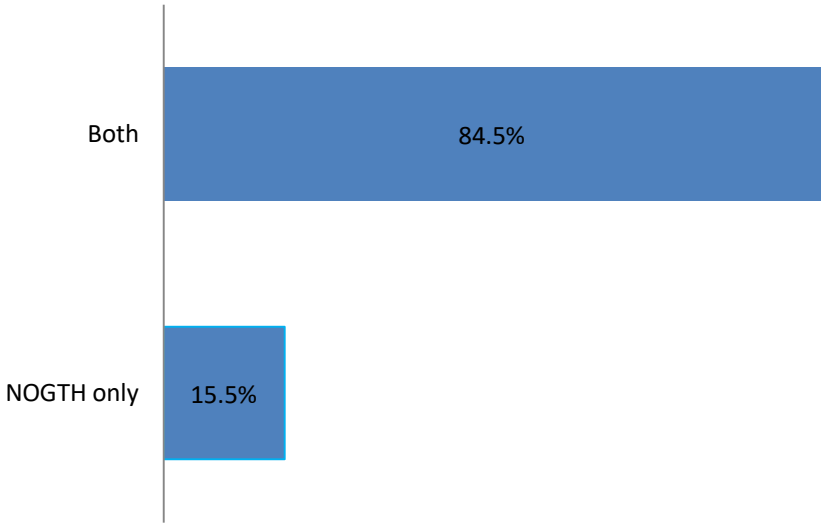

Figure (5.2) Surgical patients undergoing laboratory investigations

NOGTH serves almost all necessary laboratory investigations with the exception of some emergency conditions and time limitation. All the participants had done laboratory investigations in NOGTH's laboratory. Among them, 87 patients (84.5%) used both the hospital's laboratory and nearby outside laboratories.

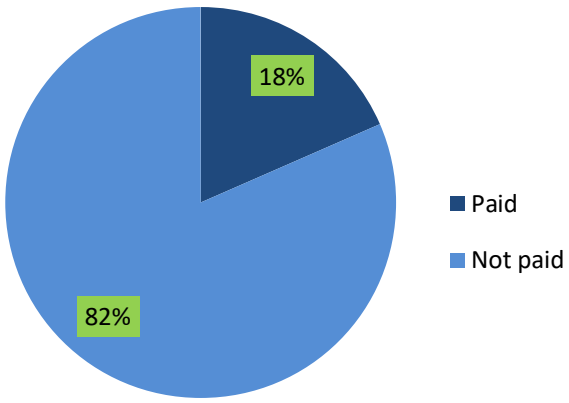

Figure (5.3) Laboratory investigations paid (or) not paid by surgical patients

Of 103 surgical patients who had performed laboratory investigations in NOGTH's laboratory, 84 patients (82%) did not need to pay out-of-pocket cost; all served in free of charges. Only 19 patients (18%) had to pay out-of-pocket health expenditure on their laboratory investigations.

Table (8) Cost of laboratory investigations for surgical patients (n=103)

Cost of laboratory investigations	Unit cost (MMK)	Median (IQR) (MMK)
Cost of laboratory investigations inside hospital	1,544	1,000 (0-16,500)
Cost of laboratory investigations outside hospital	25,299	24,500 (16,500-65,000)
Total laboratory costs by patients	26,843	26,000(18,500-65,000)

According to this table, the laboratory cost inside the hospital for surgical patients, was 1,544 MMK, no cost for minimum amount and 16,500 MMK for maximum amount. Similar to unit cost of laboratory investigation outside NOGTH was 25,299 MMK, no cost for minimum amount and 65,000 MMK for maximum amount. Total cost for laboratory investigations was 26,843 MMK in average. The maximum laboratory cost was 65,000 MMK and some patients spent no cost for laboratory investigations.

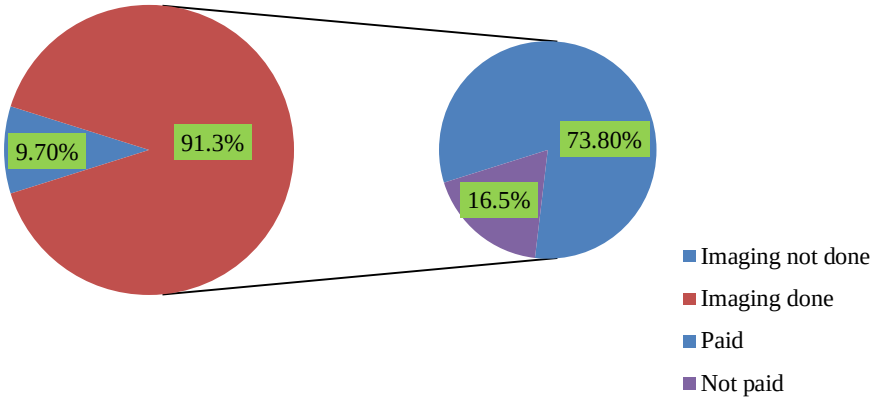

Figure (5.4) Surgical patients undergoing imaging investigations

Among 103 operated surgical patients, 10 patients did not do any imaging investigations. Of 93 patients who had to do imaging investigations, (73.8%) had to pay out-of-pocket payments. However, the other patients (16.5%) got free imaging investigations done.

Table (9) Cost of imaging investigations for surgical patients (n=103)

Cost of imaging investigations	Unit cost (MMK)	Median (IQR) (MMK)
Cost of imaging investigations inside hospital	2,811	3,000 (3,000-6,000)

Based on this table, the unit cost of imaging investigations incurred by surgical patients when done in NOGTH was 2,811 MMK only and minimum of imaging cost was free of charges and maximum cost was 6,000 MMK. No patients did any imaging investigations outside the hospital.

5.4 Non-medical OOP expenditures by surgical patients

Table (10) Cost for meals and loss of income by surgical patients (n=103)

OOP expenditure of surgical patients	Unit cost (MMK)	Median (IQR) (MMK)
Cost for meals consumed by patients	6,811	6,000 (4,500-35,000)
Loss of income by patients	30,750	30,000 (42,000-150,000)

In accordance with the type of operation, each patient had different cost for meals. The unit cost for meals by operated surgical patients was 6,811 MMK with minimum no cost and maximum 35,000 MMK. The loss of income by surgical patients based on number of absent working days was 30,750 MMK in average ranging from no income lost to maximum 150,000 MMK.

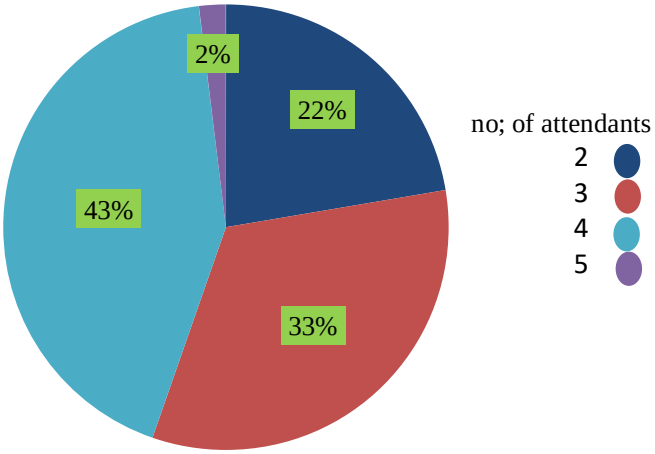

Figure (5.4) Number of attendants for surgical patients

All the patients were accompanied by relatives (or) attendants. The number of attendants had varied from 2 to 5 in this study. Nearly half of the patients were cared by 4 attendants, by 3 attendants (33%) and by 2 attendants (22%).

Table (11) OOP health expenditure of surgical patients by attendants

OOP expenditure of surgical patients	Unit cost (MMK)	Median (IQR) (MMK)
Cost for meals consumed by attendants	40,777	38,000 (27,000-110,000)
Loss of income by attendants	86,281	72,000 (53,000-375,000)
Transport charges	26,272	23,000 (20,000-64,000)
Other informal cost	4,5723	5,000 (2,000-53,000)

Out-of-pocket health expenditure contributed by the attendants includes the cost for meals of the attendants, their missing income and transport charges. Meals consumed by the attendants cost 40,777 MMK as unit cost with the minimum use of 15,000 MMK to the maximum cost of 125,000 MMK for meals. Average missing income by the attendants was 86,281 MMK. The maximum amount of income loss was 395,000 MMK and the minimum income loss was 20,000 MMK in this study.

Transportation charges comprised a large variety of out-of-pocket expenditure with the average cost of 26,272 MMK. The minimum cost for transport was 8000 MMK while the maximum use was 72,000 MMK respectively. Other informal costs comprise of private room charges, cleaning charges, donation, trolley fees etc. It ranged from minimally zero to maximally 53,000 MMK.

5.5 Unit cost of out-of-pocket health expenditure by surgical patients

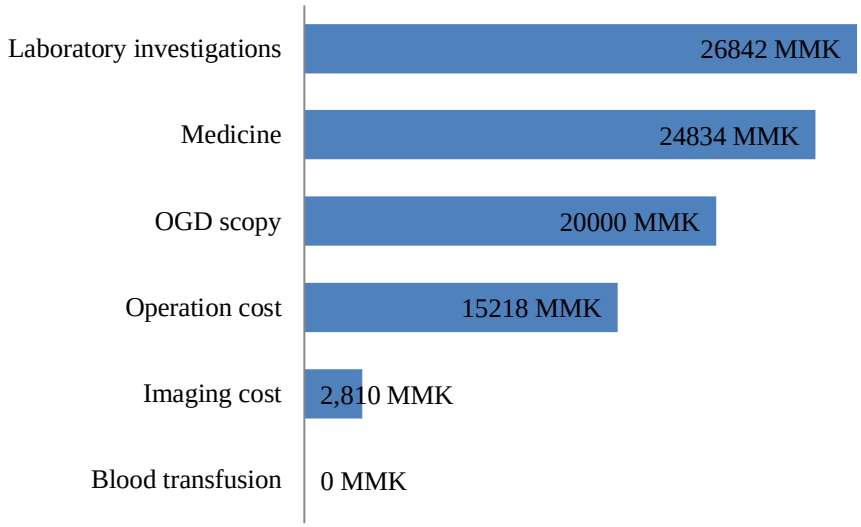

Figure (5.5) Direct health care unit cost by surgical patients

The direct health care cost of surgical patients includes medicine cost, operation cost, blood transfusion cost, OGD endoscopy cost, laboratory cost and imaging cost. Among these costs, cost for laboratory investigations was the largest portion for operated surgical patients, accounting 26,842 MMK. The second was costs for medicine, 24,384 MMK. Meanwhile, there was no cost for blood transfusion. So, this figure shows that the minimum unit cost of direct OOP expenditure was blood transfusion cost and the maximum unit cost of direct OOP expenditure was laboratory cost. So the major concerns of the direct OOP expenditure of surgical patients during hospitalization were the cost for laboratory investigations and the cost for drugs and medicines.

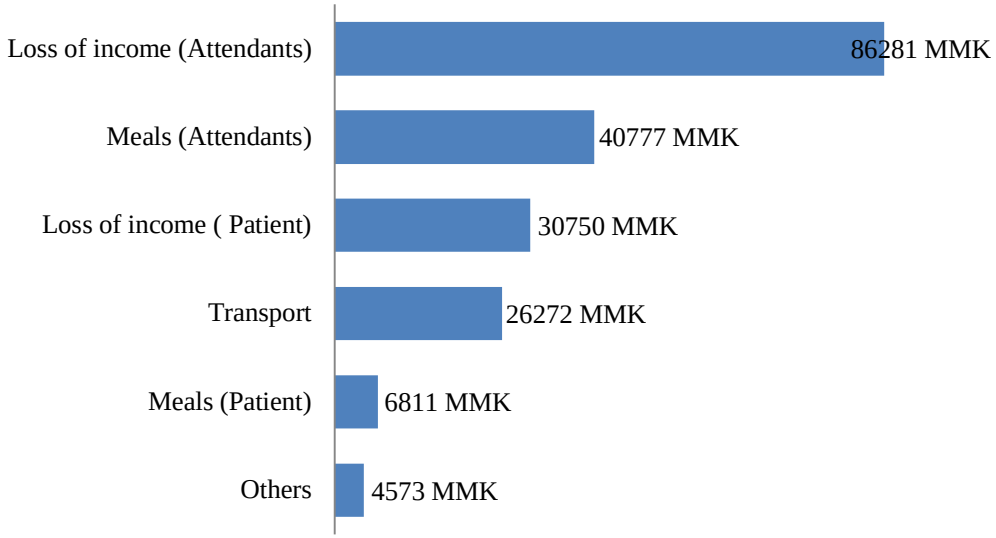

Figure (5.6) Non-medical costs by surgical patients (n=103)

Non-medical costs by surgical patients consist of the cost for meals consumed by both patients and attendants, transportation charges, loss of income by both patients and attendants and others (donation, in-kind payments etc.). The main burden of out-of-pocket health expenditure in this sector was loss of income, contributing catastrophic expenditure of the families. The cost for meals for both patients and attendants was the second large portion and the third one was transportation. Transportation cost also added the catastrophic health expenditure. Donation and in-kind payments had the smallest contribution in OOP health expenditure.

Table (12) Total out-of-pocket health expenditure by surgical patients (n=103)

Total OOP health care cost	Unit cost (MMK)	Median (IQR) (MMK)
Total direct health care cost	69,706	60,000 (39,5000-372,000)
Total non-medical expenditure	195,385	180,500 (98,000-596,000)
Total OOP cost	265,090	240,000 (127,500-949,500)

Table (12) showed the total cost of surgical patients, calculating both direct health care costs and non-medical health care expenditure. It can be found that out of the surgical patients, total unit cost incurred by patient was 265,090 MMK. Likewise the lowest unit cost 97,000 MMK incurred by patient and the highest cost was 1,046,500 MMK respectively. It showed direct health care unit cost was only (25%) of total OOP health expenditure.

Table (13) Total OOP cost of surgical patients according to type of treatment

Total OOP health care cost	Unit cost (MMK)	Median (IQR) (MMK)
Minor Surgery (n=78)		
Total direct health care cost	53,770	53,000 (28,625-112,000)
Total non-medical expenditure	166,520	166,500 (79,625-271,500)
Total OOP cost	220,290	220,000 (97,250-344,500)
Major Surgery (n=25)		
Total direct health care cost	119,428	100,500 (40,250-344,000)
Total non-medical expenditure	285,440	242,000 (123,250-590,000)
Total OOP cost	404,868	363,500 (125,500-913,600)
Emergency Surgery (n=73)		
Total direct health care cost	69,627	62,500 (35,250-291,400)
Total non-medical expenditure	186,029	180,500 (90,500-366,000)
Total OOP cost	255,656	240,500 (122,750-642,400)
Elective Surgery (n=30)		
Total direct health care cost	69,897	54,000 (53,750-366,000)
Total non-medical expenditure	181,750	181,750 (125,500-596,000)
Total OOP cost	288,047	239,250 (173,250-949,500)

Table (13) showed the total cost of surgical patients according to types of treatment. Among the unit cost of the surgical patients, the cost for surgery undergoing major operation was the highest cost (404,868 MMK) incurred by patients. Besides the unit cost (220,290 MMK) was the lowest for surgical patients undergoing minor operation. The total unit cost of surgical patients was not so different between emergency and elective operations.

According to this finding, the highest unit cost of surgical patient incurred by both was major surgery with GA and the lowest unit cost of surgical patient was minor operation with short GA during hospitalization. Therefore the major surgery and patients using GA was the major driver of OOP expenditure of surgical patient during hospitalization according to type of treatment.

Table (14) Total OOP cost of surgical patients depending on types of anesthesia

Total OOP health care cost	Unit cost (MMK)	Median (IQR) (MMK)
Surgery using General Anesthesia (n=25)		
Total direct health care cost	119,428	100,500 (40,250-344,000)
Total non-medical expenditure	285,440	242,000 (123,250-590,000)
Total OOP cost	404,868	363,500 (125,500-913,600)
Surgery using Spinal Anesthesia (n=72)		
Total direct health care cost	55,062	53,250 (23,750-106,000)
Total non-medical expenditure	1166489	166,500 (76,125-271,500)
Total OOP cost	221,550	220,000 (79,875-344,500)
Surgery using Short General Anesthesia (n=6)		
Total direct health care cost	38,250	30,750 (45,250-62,500)
Total non-medical expenditure	166,917	160,000 (156,625-166,000)
Total OOP cost	205,167	202,750 (183,125-225,500)

Among the unit cost of the surgical patients, the study showed that the cost for surgery using general anesthesia and major operation was the highest cost (404,868 MMK) each. Besides the unit cost was the lowest (205,167 MMK) for surgical patients using short general anesthesia. It found that out of the operated surgical patients, the highest unit cost of OOP expenditure incurred by patients was operation of major surgery and operation using general anesthesia.

CHAPTER (6)
DISCUSSION

In this study, OOP health expenditure in operated surgical patients was mainly contributed by the costs for laboratory investigations, type of operation and number of attendants. The direct health care cost comprised only (25%) of total OOP health expenditure while non-medical health expenditure accounted (75%). Among direct health care costs, the major influence of out-of-pocket health expenditure in operated surgical cases was the costs for laboratory investigations. The laboratory costs varied a lot between the public laboratory and private laboratory. Most of the patients did not need to pay any OOP payments in NOGTH's laboratory for mostly used basic essential investigations. However, when the patients went outside for private laboratory, their OOP also went high and it became the burden. Therefore, one of the methods to reduce OOP payments during hospitalization is through reduction in use of private laboratory as much as possible.

Among the unit cost of the surgical patients, the cost for major operation and surgery using general anesthesia accounted for the highest share of OOP payments. Therefore, according to type of treatment and use of anesthesia, the major driver of OOP expenditure of surgical patients during hospitalization was major surgery using general anesthesia.

Among the non-medical health expenditure, loss of income of the patients' attendants and the cost for meals consumed by the attendants were the greatest portions of OOP expenditure. The more the number of the attendants, the more increase OOP incurred by the families. The transportation cost was also the considerable contribution for OOP health expenditure.

The majority of the patients who were admitted to and discharged from the surgical units of NOGTH aged from 20 years to 39 years. The male patients were more dominant than the female patients and majority were married. Regarding to the education status of the patients, most of the patients had completed secondary school level.

Most of the study participants were manual workers. The majority of the patients resided in Yangon region and the average household size of this study was 5.7 family members. In the 2014 Myanmar population and housing census, the average household size of Myanmar was 4.4 in the whole country (Ministry of immigration and population, 2015).

The average monthly household income was 450,000 MMK and monthly household expenditure was 450,000 MMK. Therefore most of the families had to make an effort to make ends meet. And there was no savings. In this study, the commonest challenge of most of the patients was that they have no extra money in hand and as a result, they have to bear the burden of direct and indirect cost of hospitalization.

The average length of hospital stay was 5.7 days because majority of patients (e.g., appendectomy, hernia and mesh repair operation and wound operation) had undergone emergency operations without post-operative complications and comorbidities. For the patients undergoing major surgery or elective operation such as total mastectomy and axillary dissection, and subtotal thyroidectomy, had to wait for a long time before operation and so their hospital stay was prolonged considerably.

In this study, most of the operations were emergency operations such as emergency appendectomy, and laparotomy and proceed operations. The types of treatment were categorized as emergency treatment and elective treatment. More than two third of the operations had undergone emergency operations in the study. Out of 103 patients, nearly half of the cases had undergone emergency appendectomy operation with or without peritoneal toilet. Most of the patients needed no blood transfusion and few were investigated as OGD endoscopy. Perineal operation was merely (7%) and it was minor and elective operation. This may indicate that the large proportion of the operations were emergency cases which must be performed immediately, and without these emergency operation, a patient could be permanently harmed or die.

Most of the operations such as emergency appendectomy, hernia and mesh repair, herniotomy and herniorrhaphy and perineal operation, which were minor operation, were using spinal anesthesia. The operations using general anaesthesia were resection and anastomosis of small or large intestine, partial gastrectomy and gastrojejunostomy, total mastectomy and axillary dissection, subtotal thyroidectomy

and cholecystectomy.

Information on costs of surgical services can be used for monitoring the efficiency of service delivery, making resource allocation decisions involving surgery, and setting reimbursement rates to health care providers. Better availability of drugs and diagnostics in public sector are likely to yield better results. There is an urgent need to reorient and strengthen the public health systems towards the provision of holistic primary care.

In NOGTH, the patients are firstly registered to the ED and then they are given treatments and investigations by specialist, these all are free of charges. The patient did not need to incur cost of medical care whatever emergency operation was performed at the ED. If the patients had not necessary to undergo urgent operation, they were treated with appropriate emergency treatment at ED and transported to the corresponding one of the surgical units. However, at surgical unit, the admitted patient had to incur some medicines, which were not supplied items or out-of-stock medicines at the NOGTH indent and some investigations, which were not currently available at the NOGTH laboratory.

Government has supplied the medicines and medical equipment since the financial year 2012-2013, in line with the support for free of charge for essential medicines, emergency cases, maternal and pediatrics cases and laboratory investigations to reduce OOP health expenditure. In-stock medicines are supplied from the hospital with free of charges. Despite of the provision of medicines and allocation of more budgets to all hospitals, contribution of OOP expenditure for quality health care still remains high.

In the cases of emergency OGD endoscopy, it is usually done at surgical units and if it is the elective condition, the patient is discharged and transferred to the GI department. In the cases of emergency OGD endoscopy, the unit cost of the OGD endoscopy incurred by patient was 20,000 MMK for maintenance of machine, cleaning and antiseptic solution while those cost incurred by hospital such as OGD endoscope machine and its accessories, human resources for health, electricity and other infrastructure for endoscope was not considered in this study.

The estimation of costs for laboratory and imaging investigations was different in nature because of varieties of laboratory tests and different laboratory reagent's budgets supplied by government depending on the beds of hospital. Some of the laboratory tests requested at the surgical units were not available at NOGTH laboratory and therefore these kinds of investigations were referred to nearby private laboratory.

Moreover, for preoperative assessment of the patient, some of the investigations requested by the anesthetist were done at the NOGTH laboratory but the investigations which were not available were referred to the private laboratory. Furthermore, the most requested investigation for private laboratory was biopsy. Therefore, there were the more requests for laboratory test at private laboratory, the more cost incurred by patient, resulting in the financial burden to the patients and their families.

Regarding the imaging, most of the investigations of imaging such as electrocardiogram (ECG), ultrasonography (USG), Chest X ray, CT scan and MRI were available at the NOGTH and these were some charges for maintenance of the machines.

If the patient underwent elective operation, one of the major OOP costs was the cost for operation including consumable items during operation such as suturing, anesthesia drugs, surgical gloves etc. Conversely, if the patient underwent emergency operation, all costs for operation and consumable items during operation was free of charges. According to this study, major drivers of the cost incurred by surgical patients were and laboratory cost and medicine cost.

At 2009 study at Vietnam, the share of OOP is around 64% of total health expenditure. Given the low coverage of health insurance, specifically in the informal sector which in Vietnam mainly consists of farmers and self-employed, this exposes large part of the population to two major risks. First, they may become impoverished or pushed further into poverty due to health expenditure. Second, those households who delay or forego health care due to financial constraints are exposed to the detrimental impact of such decisions on their health status (Axelson *et al.*, 2009).

In the study of Nguyen H *et al*., 2011, the unit costs of major and minor surgery were US$ 129 or (30%) of the total medical care costs during hospital stays and US$ 68 or (34%), respectively. The current study revealed the unit cost of

404,868 MMK (US$ 261) for major surgery and 220,290 MMK (US$ 142) for minor surgery. It was quite a big higher OOP health expenditure. It showed that the three major drivers of the medical care costs during hospitalization were surgery cost, accounted for the largest proportion of the total (24.8%), cost for diagnostic test or examinations (23.9%) and that for drugs (23.4%). The surgery cost was still the largest proportions in this study, which was not consistent with the current study, in which cost for laboratory investigations was the main portion of OOP expenditure and cost for medicines the second (Nguyen H *et al*., 2011).

Analysis of OOP health expenditures in the Philippines found that direct health care cost accounted for around (50 %) of total OOP expenditures. Of these, (64%) and (29 %) are pharmaceutical products and nutritionals, respectively. The increasing share of drugs and medicines was consistently higher. It was not similar to the current study in which direct health care cost comprised only (25%) of total OOP payments. And the cost for laboratory investigations was the highest one (Ulep and dela Cruz, 2013).

In a study done in India, the median OOP expenditure on hospitalization was ₹ 8000 (US$ 133), which was predominantly attributed to medicines (37%) and diagnostic tests (20%). The median OOP health expenditure in this study was 240,000 MMK (US$ 155) (1US$=1550 MMK) and it was a little bit higher. However, the major contributions to high OOP are consistent with the current study (Rout *et al*., 2016).

In a study conducted in Vietnam, cost by injury characteristics and their distribution across cost categories are summarized as burn was the injury incurred the highest costs, US$ 321, which was nearly twice the costs incurred by assault, the least costly injury. Drugs were the major cost driver for burns over (28%) of the total costs, the highest proportions compared with all other external causes. The OOP payment was higher than the cost incurred by operated surgical patients in the current study. It may be due to the difference in nature of disease and duration of hospital stay (Nguyen H *et al*., 2017).

Among 103 surgical inpatients, 78 patients with minor surgery were found; the majority of the minor surgery cases were emergency operation, which was operated at emergency operation theater locating the emergency department (ED) and free of charges for medicines and anesthesia, similar to the study of Zin Zin Than Wai done in Yangon General Hospital. It has been found that, the patients with major

surgery and emergency operation done at the ED's operation theater had no OOP expenditure during the operation, consistent with the current study. On the other hand, these patients with major surgery and elective operation at the modular operation theater who transferred to the corresponding surgical units were waiting for the operation day. For elective operations, with the cost of medicines (not provided by hospital), consumable items and anesthesia drugs using for operation, the patient had more OOP expenditure than emergency operations, same as the current study (Zin-Zin-Than-Wai, 2017). Moreover, all of the emergency cases were free of charges because of the government policy which set that all of the emergency cases are offered free of charges.

In 2009, the study of cost analysis of acute coronary syndrome (ACS) patients in cardiac medical unit of Yangon General Hospital found that the hospital cost accounted for a mean of 214,479 MMK (US$ 214) in 48 patients of ACS (median 200,000 MMK with the range of 60,000 to 520,000 kyats. As a result of among 48 patients of ACS, about (50%) of total cost was due to non-medical cost as well as (36%) was direct medical cost. Total OOP expense was higher in ACS patients because there may be use of more expensive drugs. These findings are different with the current study in spite of similarities of acute emergency conditions (Inn-Kynn-Khaing, 2009).

In the study conducted on out-of-pocket payments for caesarean section deliveries among post-partum women who attended maternity wards of tertiary hospital and township hospital in Yangon region, it revealed that various categories of OOP payments and informal payments were reported during the antenatal period, during hospitalization and at time of the discharge from hospitals. There was statically difference in the average amount of OOP payment between the hospitals; 107,427±54,038 kyats (US$ 89) in the tertiary hospital and 153,041±64,077 kyats (US$ 127) in the township hospital. Similarly the average informal payment is also statistically significant and amount is 25,717±14,472 kyats (US$ 21) in the tertiary hospital and 79,907±46,828 kyats (US$ 66) in the township hospital. Compared to this study, the cost of operated surgical cases was quite higher because of the acute emergency nature of disease and the duration of hospital stay (Min-Aung, 2015).

A study of the unit cost of health care services at 200-bed public hospitals in Myanmar concluded that the unit cost per in-patient day varied from unit to unit in Pyinmanar General Hospital (PMN GH) and 200-bed Magway Teaching Hospital (MTH). The surgery unit of MTH and the eye unit of PMN GH consumed most of the total cost of the hospitals. According to cost structure, medicines and medical supplies was the largest component at MTH, meanwhile laboratory investigations cost the most in the current study (Thet-Mon-Than *et al.*,2017)

This study had some limitations. In fact, the study elucidated direct health expenditure paid for in cash, without accounting opportunity cost or indirect cost in a systematic way. Moreover, it did not account for health care cost incurred by hospital such as infrastructure, building, equipment, machines, and human resources for health etc. which was one of the limitations of the study.

CHAPTER (7)
CONCLUSION

In this study, the unit cost of out-of-pocket health expenditure of operated surgical patients in NOGTH was 240,000 MMK. OOP health expenditure in operated surgical cases was mainly contributed by the costs for laboratory investigations, type of operation and number of attendants. The direct health care cost comprised only (25%) of total OOP health expenditure while non-medical health expenditure accounted for even (75%). Among direct health care costs, the major influence of out-of-pocket health expenditure in operated surgical cases was the costs for laboratory investigations. The cost for drugs and medicines took the second large share. Among the unit cost of the surgical patients, the cost for major operation and surgery using general anesthesia accounted for the highest share of OOP payments. Among the non-medical health expenditure, loss of income of the patients' attendants and the cost for meals consumed by the attendants held the highest share of OOP expenditure. The more the number of the attendants, the more increase OOP incurred by the families. The transportation cost was also the considerable contribution for OOP health expenditure.

In conclusion, high OOP health expenditure is still a major problem to protect hardship financing and to get more coverage of quality health care services. This study did not consider the cost for the human resources for health. And the capital cost for buildings and infrastructure like machines, electricity and medical equipment are not calculated in this study. However, this study can provide the basic information of health care expenditure and help the policy makers to allocate of healthcare budget effectively and efficiently among the hospitals. It highlights the requirement of appropriate health financing system to develop and to reduce financial hardship of patients for achievement of universal health coverage.

CHAPTER (8)
RECOMMENDATIONS

From the study, the following recommendations should be considered for financial protection of the patients and more coverage of quality health care.

1. When analyzing the cost of surgical patients during hospitalization, the most common cost of investigations patient incurred was biopsy (if the patient needs to do in private laboratory). So the cause for referring to private laboratory for biopsy needs to be found out and necessary actions to address this challenge should be taken (such as providing up-to-date laboratory facilities, capacity building for human resources for instance pathologist, medical technologists and laboratory technicians).
2. The cost incurred by the attendants was the largest portion in non-medical health expenditure. The need of reducing the number of patients' attendants should be solved by increasing human resources for health, for example, nurse-aids and ground level workers and standard operating procedure for 24 hour-services to gain efficient health system.
3. As the suitable consideration of reduction of OOP expenditure, Myanmar health system needs to introduce the prepayment scheme for all health care services.
4. Further study needs to be conducted including the capital cost such as infrastructure, building, equipment, human resources for health to precisely estimate the OOP expenditure so that it will be helpful to estimate the complete and more precise essential packages of health services and reduce the financial burden of the patients and their family.

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ANNEXES

Annex (1) Variables and operational definitions

No	Variables	Operational definition	Scale of measurement
1.	Out-of-pocket expenditure	Direct payments made by individuals to health care providers at the time of service use	Ratio
2.	Major surgery	Invasive operative procedure in which a more extensive resection is performed.	Nominal
3.	Minor surgery	Invasive operative procedure in which only skin or mucous membranes and connective tissue is resected.	Nominal
4.	Emergency surgery	Procedure that must be performed immediately, and without which a patient could be permanently harmed or die.	Nominal
5.	Elective surgery	Procedure that must be done to preserve the patient's life, but does not need to be performed immediately.	Nominal

Annex (2) Informed consent form (Myanmar and English)

သုတေသနနည်းပညာနှင့် ကျင့်ဝတ်ကော်မတီ
ပြည်သူ့ကျန်းမာရေးတက္ကသိုလ်(ရန်ကုန်)
သုတေသနသဘောတူညီချက်ပုံစံ

အဓိကသုတေသီ၏အမည် - ဒေါက်တာကျော်နေဇာလှိုင်

သုတေသနအမည် - မြောက်ဥက္ကလာပ အထွေထွေရောဂါကုနှင့် သင်ကြားရေးဆေးရုံကြီးတွင် တက်ရောက်ကုသလျက် ရှိသော ခွဲစိတ်ကုသပြီး လူနာများ၏ စိုက်ထုတ်သုံးစွဲရသော ကုန်ကျငွေများအား ဆန်းစစ်ခြင်း။

အပိုင်း(က) သုတေသနနှင့်သက်ဆိုင်သော အချက်အလက်များ

၁။ မိတ်ဆက်နိဒါန်း

မိမိ၏အမည်မှာ ဒေါက်တာကျော်နေဇာလှိုင်ဖြစ်ပြီး မြောက်ဥက္ကလာ အထွေထွေရောဂါကုနှင့် သင်ကြားရေးဆေးရုံကြီးတွင် တက်ရောက်နေသော ကျောင်းသားဖြစ်ပါသည်။ မိမိအနေဖြင့် မြောက်ဥက္ကလာအထွေထွေရောဂါကုနှင့် သင်ကြားရေးဆေးရုံကြီးတွင် တက်ရောက်ကုသလျက်ရှိသော ခွဲစိတ်ကုသပြီး လူနာများ၏ စိုက်ထုတ်သုံးစွဲရသော ကုန်ကျငွေများအား ဆန်းစစ်ခြင်း သုတေသနလုပ်ငန်းတစ်ခုကို ဆောက်ရွက်လိုပါသည်။ သုတေသနအကြောင်းကို ရှင်းပြမှာဖြစ်ပြီး သင့်အားပါဝင်ရန် ဖိတ်ခေါ်လိုပါသည်။ သင့်အနေဖြင့် မရှင်းလင်းသည်များရှိပါက ပြန်လည်မေးမြန်းနိုင်ပါသည်။

၂။ ရည်ရွယ်ချက်

သုတေသနပြုလုပ်မည့်အကြောင်းအရာမှာမြောက်ဥက္ကလာပအထွေထွေရောဂါကုနှင့် သင်ကြားရေးဆေးရုံကြီးတွင်တက်ရောက်ကုသလျက် ရှိသော ခွဲစိတ်ကုသပြီးလူနာများ၏ စိုက်ထုတ်သုံးစွဲရသော ကုန်ကျငွေများအား ဆန်းစစ်ခြင်းဖြစ်ပြီး လူနာများမှ စိုက်ထုတ်ထည့်ဝင်မှုရှိ၊ မရှိသိနိုင်ရန် လုပ်ဆောင်ခြင်းဖြစ်ပါသည်။ သုတေသနပြုလုပ်မှု၏ ရလဒ်များအား အခြားလုပ်ငန်းများတွင် အသုံးပြုခြင်းမပြုလုပ်ပါ။ သုတေသနပြုလုပ်ခြင်းတွင် ပါဝင်

ဆောင်ရွက်ရန် သဘောတူညီသည် ဆိုပါက မေးခွန်းများ ဖြေဆိုခြင်းဖြင့် ပူးပေါင်း ဆောင်ရွက် ပေးရမည်ဖြစ်ပါသည်။

၃။ သုတေသနဆောင်ရွက်ပုံအမျိုးအစား

ဤသုတေသနသည် တစ်ဦးချင်း မေးခွန်းများကို ဖြေဆိုရမည်ဖြစ်ပြီး (၁)နာရီခန့် ကြာမည်ဖြစ်ပါ သည်။

၄။ ပါဝင်သည့်သူများရွေးချယ်ခြင်း

သင့်အား ဤ သုတေသနတွင် ပါဝင်ရန် ဖိတ်ခေါ်ရခြင်းမှာ သင့်အနေဖြင့် မြောက် ဥက္ကလာပ အထွေထွေရောဂါကုနှင့် သင်ကြားရေး ဆေးရုံကြီးရှိ ခွဲစိတ်ဆောင်တွင် အတွင်း လူနာအဖြစ် တက်ရောက်ဆေးကုသမှုခံယူနေသော လူနာဖြစ်နေသည့် အတွက်ဖြစ်ပါသည်။

၅။ မိမိဆန္ဒအလျောက်ပါဝင်ခြင်း

ဤသုတေသနတွင် သင် ပါဝင်ကူညီခြင်းသည် သင်၏သဘောဆန္ဒအလျောက်သာ ဖြစ်ပါသည်။ ပါဝင်ခြင်း၊ မပါဝင်ခြင်းမှာ သင်၏ဆန္ဒအတိုင်း ရွေးချယ်မှုသာဖြစ်ပါသည်။

၆။ လုပ်ဆောင်ပုံ

သုတေသနတွင် သင့်အားပါဝင်ရန်ဖိတ်ခေါ်ပါသည်။ သင့်အနေဖြင့် ဤသုတေသနတွင် ပါဝင်ရန် သင်သဘောတူမည်ဆိုပါလျှင် မေးခွန်းများကို ကိုယ်တိုင်တစ်ဦးချင်း ဖြေဆိုရမည် ဖြစ်ပြီး (၁)နာရီခန့် ကြာမည်ဖြစ်ပါသည်။ သင့်အား မိမိစိုက်ထုတ်ကုန်ကျ ရသောကုန်ကျငွေ ပေးဆောင်ရသည့်အခအား မေးမြန်းလိုပါသည်။ သင်မဖြေလိုသော အကြောင်းအရာများ ပါဝင်ပါက မဖြေဆိုဘဲနေနိုင်ပါသည်။ မေးခွန်းများဖြေဆိုရာတွင် စိတ်အနှောက်အယှက် ဖြစ်၍ မဖြေလိုသော မေးခွန်းရှိပါက သင့်ဆန္ဒအလျောက်မဖြေဆိုဘဲ ငြင်းဆို နိုင်ပါသည်။

၇။ အကျိုးကျေးဇူး

ဤသုတေသနတွင် ပါဝင်သောကြောင့် သင့်အတွက် တိုက်ရိုက် အကျိုးကျေးဇူး ရရှိမည်မဟုတ်ပါ။ သို့သော် သုတေသန တွေ့ရှိချက်များမှ ကျန်းမာရေး စောင့်ရှောက်မှု ပေးသူများက လူနာများအပေါ် လုပ်ဆောင်ပေးရမည့် အရာများအား ဖော်ထုတ်နိုင်မည် ဖြစ်ပါသည်။

၈။ အချက်အလက်များသိမ်းဆည်းထားခြင်း

ဤသုတေသနမှ ကောက်ယူရရှိသည့် အချက်အလက်များကို လုံခြုံစွာ ထားရှိမည် ဖြစ်ပါသည်။ သင့်ထံမှ ရရှိမည့် အချက်အလက်များကို သုတေသနအဖွဲ့မှအပ အခြားသူများ မသိစေရပါ။

၉။ သုတေသနရလဒ်များဖြန့်ဝေခြင်း

ဤသုတေသန၏ တွေ့ရှိချက်ကို ဤလေ့လာမှု အတွက် တာဝန်ရှိသူများအား သိရှိစေမည် ဖြစ်ပါသည်။ ဤသုတေသနကို စိတ်ဝင်စားသူအခြားသူများ သိရှိစေနိုင်ရန် ရလဒ်များကို ဖြန့်ဝေပေးမည် ဖြစ်ပါသည်။

၁၀။ ဤသုတေသနမေးခွန်းများဖြေဆိုပေးခြင်းသည် ကျန်းမာရေးစောင့်ရှောက်မှုခံယူသူ အား ကုသပေးမည့်ကုထုံးများနှင့် ဆောင်ရွက်ချက်များအပေါ် မည်သည့်အနှောက်အယှက်မျှ မဖြစ်စေရပါ။

၁၁။ ဆက်သွယ်ရမည့်ပုဂ္ဂိုလ်

အကြောင်းတစ်စုံတစ်ရာရှိပါက မေးမြန်းလိုလျှင် ဒေါက်တာကျော်နေဇော်လှိုင်၊ ဖုန်း-၀၉၇၈၈၀၃၉၀၈၉ ကို ဆက်သွယ်နိုင်ပါသည်။ ဤသုတေသနကို ပြည်သူ့ကျန်းမာရေး တက္ကသိုလ် သုတေသနနည်းပညာနှင့် ကျင့်ဝတ်ကော်မတီမှ ခွင့်ပြုချက်ရရှိထားပြီးဖြစ်ပါသည်။

အပိုင်း(ခ) <u>သုတေသနတွင် ပါဝင်ရန် သဘောတူညီမှုပုံစံ</u>

ကျွန်ုပ်သည် မြောက်ဥက္ကလာပ အထွေထွေရောဂါကုနှင့် သင်ကြားရေးဆေးရုံကြီးတွင် တက်ရောက် ကုသလျက်ရှိသော ခွဲစိတ်ကုသပီးလူနာများ၏ စိုက်ထုတ်သုံးစွဲရသော စိုက်ထုတ်ကုန်ကျငွေများ ဆန်းစစ်ခြင်းသုတေသနတွင် ပါဝင်ရန်ဖိတ်ခေါ်ခြင်းခံရပါသည်။ ဤသုတေသနတွင် ပါဝင်ခြင်းဖြင့် ကျွန်ုပ်၌ တိုက်ရိုက်အကျိုးကျေးဇူး မရရှိနိုင်ကြောင်း သိရှိရပါသည်။ မေးခွန်းများကိုဖြေဆိုရန် (၁)နာရီခန့် ကြာမြင့်မည်ဖြစ်ပြီး ကျန်းမာရေး စောင့်ရှောက်မှုပေးသူများ၏ လုပ်ဆောင်ချက်များအပေါ် ကျွန်ုပ်သဘောထားခံယူ ချက်ကို မေးမြန်းမည်ဖြစ်ကြောင်းသိရှိရပါသည်။ အဆိုပါ မေးခွန်းများတွင် မဖြေလိုသောအကြောင်း အရာများပါရှိလျှင်လည်း မဖြေဆိုပဲနေနိုင်ကြောင်းသိရှိရပါသည်။ ဤသုတေသနတွင် ကျွန်ုပ်သည် အထက်ဖော်ပြချက်များကို ဖတ်ရှုပြီးဖြစ်ပါသည်။ မရှင်းလင်းသည့် မေးခွန်းများကိုလည်း မေးမြန်းနိုင်၍ ၎င်းတို့ကို ကျွန်ုပ်ကျေနပ်သည်အထိ ဖြေဆိုပေးမည်ဖြစ်ပါသည်။ ကျွန်ုပ်ဆန္ဒ အလျောက် ဤသုတေသန လုပ်ငန်းတွင် ပါဝင်ရန် သဘောတူပါသည်။

သုတေသနတွင် ပါဝင်သူအမည် ।----------

သုတေသနတွင် ပါဝင်သူလက်မှတ် ।----------

ရက်စွဲ ।----------

သုတေသီ၏အမည် ।----------

လက်မှတ် ।----------

ရက်စွဲ ।----------

Institutional Technical and Ethical Review Committee

University of Public Health, Yangon

Informed Consent Form

Name of Investigator – Dr Kyaw Nay Zar Hlaing

Title of research - "Out-of-pocket Health Expenditure in Operated Surgical Cases in North Okkalapa General and Teaching Hospital (2019)"

Part (A)

1. Introduction

I am Dr Kyaw Nay Zar Hlaing, a candidate of MHA, attending at University of Public Health, Yangon. I am doing research on "Out-of-pocket health expenditure in operated surgical cases in North Okkalapa General and Teaching Hospital (2019)".

2. Purpose of the research

This research is proposed to assess the out-of-pocket expenditure of surgical cases in North Okkalapa General and Teaching Hospital.

3. Type of Research Intervention

This research will involve your participation in an hour of interview.

4. Participant Selection

You are being invited to take part in this research because you are in-patient in Surgical units on NOGTH.

5. Voluntary Participation

Your participation in this research is entirely voluntary. It is your choice whether participate or not.

6. Procedure

I would like to invite you to take part in this research project. If you accept, you will be asked to involve in interview individually. This will take about an hour. The interview will be undertaken at a place which is comfortable for you. The interview questionnaire will include information about your socio-demographic

factors and your perception on responsiveness. You do have to answer any question or take part in the discussion if you feel the issue(s) are too personal or if talking about them makes you uncomfortable.

7. Benefits

Participation in this study will not benefit the participant directly. However the findings from this study will be useful in enhancing health system financing and forward to the Universal Health Coverage.

8. Confidentiality

I will not be sharing information about your participation in this study to anyone outside. The information that I collect from this research project will be kept private.

9. Sharing the Results

The knowledge that I get from research will be only to the persons who have the responsibility for this study. I will then publish the results to be read only by the interested people.

10. Who to contact

If there are any queries before, during and after the study you can directly contact the investigator Dr. Kyaw Nay Zar Hiaing, Phone number 09788039089 or via Gmail kyawnayzar.fr@gmail.com. This proposal had been reviewed and approved by the Institutional Technical and Ethical Review Board (ITERB) of the University of Public Health, Yangon, which is a committee whose task is to make sure that research participants are protected from harm. If you wish to find out more about the committee, contact the secretary of the committee at University of Public Health, Yangon, No. 246, Myoma Kyaung Street, Latha Township, Yangon, 11311. Office phone +95 1395213, +95 1395214 ext:23/25.

Part (B) Certificate of Consent

I have been invited to participate in research about assessing the out-of-pocket expenditure of surgical cases in North Okkalapa General and Teaching Hospital. I understand that I will have to participate in individual interview which will last about an hour. I am aware that there may be no benefit to me personally. The interview questionnaire will include the costs of medicine and investigations during the hospital stays at NOGTH.

I have read the foregoing information, or it has been read to me. I have had the opportunity to ask questions about it and any questions. I consent voluntarily to be a participant in this study.

Name of participant ----------

Signature of participant ----------

Date ----------

Name of researcher ----------

Signature of researcher ----------

Date ----------

Annex (3) Questionnaires form (Myanmar and English)

မြောက်ဥက္ကလာပ အထွေထွေရောဂါကုနှင့် သင်ကြားရေးဆေးရုံကြီးတွင် အတွင်းလူနာအဖြစ် တက်ရောက်ကုသလျက်ရှိသောခွဲစိတ်ကုသပြီးလူနာများဘက်မှ စိုက်ထုတ်သုံးစွဲရသော ငွေကြေးကုန်ကျ စရိတ်ဆိုင်ရာ လေ့လာမှုမှတ်တမ်း

		နေ့စွဲ		
		အမှတ်စဉ်		
အပိုင်း(၁) ဖြေဆိုသူ၏ လူမှုစီးပွားရေးဆိုင်ရာ အချက်အလက်များ				
စဉ်	မေးခွန်း	အဖြေများ		ကုဒ်
၁.၁	သင်၏အသက် (ပြည့်ပြီးအသက်)	( )နှစ်		
၁.၂	ကျား/မ	ကျား	၁	
		မ	၂	
၁.၃	လက်ရှိအိမ်ထောင်ရေးအခြေအနေ	၁။ အိမ်ထောင်မရှိ	၁	
		၂။ အိမ်ထောင်ရှိ	၂	
၁.၄	သင်၏ပညာရေးအခြေအနေ	၁။ စာမတတ်	၁	
		၂။ဖတ်တတ်/ရေးတတ်	၂	
		၃။ မူလတန်း	၃	
		၄။ အလယ်တန်း	၄	
		၅။ အထက်တန်း	၅	
		၆။ ကောလိပ်/ တက္ကသိုလ်ဘွဲ့ရ	၆	

၁.၅	သင်၏အလုပ်အကိုင်	၁။ မှီခို	၁	
		၂။ အစိုးရဝန်ထမ်း	၂	
		၃။ ကိုယ်ပိုင်စီးပွားရေး	၃	
		၄။ ကုမ္ပဏီဝန်ထမ်း	၄	
		၅။ ကျပန်း	၅	
		၆။ ကျောင်းသူ	၆	
		၇။ တောင်သူ	၇	
၁.၆	လိပ်စာ	၁။ ရန်ကုန်တိုင်း	၁	
		၂။အခြားတိုင်းနှင့်ပြည်နယ်	၂	
၁.၇	မိသားစုဝင်အရေအတွက်	ယောက်		
၁.၈	မိသားစုတစ်စုလုံး၏ တစ်လပျမ်းမျှဝင်ငွေ	ကျပ်		
၁.၉	မိသားစုတစ်စုလုံး၏ တစ်လပျမ်းမျှအသုံးစရိတ်	ကျပ်		
၁.၁၀	ဆေးရုံစတက်သည့်ရက်စွဲ			
၁.၁၁	ဆေးရုံဆင်းသည့်ရက်စွဲ			

အပိုင်း(၂) ဆေးရုံတက်နေစဉ်အတွင်း စိုက်ထုတ်ကုန်ကျငွေနှင့်ဆက်စပ်သောမေးခွန်းများ			
၂.၁	ဆေးရုံတက်နေအတွင်းဆေးဝါးနှင့်ဆက်စပ်ပစ္စည်းများအတွက် စိုက်ထုတ်ကုန်ကျငွေနှင့်ဆက်စပ်သောမေးခွန်းများ		
စဉ်	မေးခွန်း	အဖြေများ	ကုဒ်
၂.၁.၁	ဆေးရုံတက်ချိန်မှဆေးရုံဆင်းမည့်အချိန် အထိဆေးဖိုးကုန်ကျငွေမည်မျှရှိပါသနည်း။ (ဥပမာ-တစ်ခါသုံးလက်အိတ်၊ နှာခေါင်းပိုက်၊ဆီးပိုက်)		

၂.၂	ဆေးရုံတက်ရောက်နေစဉ်အတွင်း ခွဲစိတ်ကုသမှုနှင့်ဆက်စပ်သောမေးခွန်းများ		
စဉ်	မေးခွန်း	အဖြေများ	ကုဒ်
၂.၂.၁	ဆေးရုံတက်နေစဉ်အတွင်း ခွဲစိတ်မှုခံခဲ့ရပါသလား။	၁။ ခံခဲ့ရပါသည်။	
		၂။ မခံခဲ့ရပါ။	
၂.၂.၂	ခွဲစိတ်မှုခံခဲ့ရပါက ဘယ်နှစ်ကြိမ်ခွဲစိတ်ခဲ့ရပါသနည်း။	ကြိမ်	
၂.၂.၃	ခွဲစိတ်ခံခဲ့ရလျှင်မည်သည့်ခွဲစိတ်မှုမျိုး ပြုလုပ်ခဲ့ရပါသနည်း။(ဥပမာ-အရေးပေါ် (သို့မဟုတ်) ပုံမှန်)	၁။ အရေးပေါ်	
		၂။ ပုံမှန်	
၂.၂.၄	ထိုခွဲစိတ်မှုအတွက်ငွေကြေးစိုက်ထုတ်ရပါသလား။	၁။စိုက်ထုတ်ရပါသည်။	
		၂။ မစိုက်ထုတ်ရပါ။	

၂.၂.၅	ငွေကြေးစိုက်ထုတ်ရပါက ငွေမည်မျှ ကုန်ကျပါသနည်း။ (ဥပမာ-ဆေးဝါးဖိုး၊ မှေ့ဆေးဖိုး၊ ချုပ်ကြိုးဖိုးအတွက်)	ကျပ်	

၂.၃	ဆေးရုံတက်နေစဉ်အတွင်း အခြားကုထုံးများနှင့်ဆက်စပ်သော မေးခွန်းများ		
စဉ်	မေးခွန်း	အဖြေများ	ကုဒ်
၂.၃.၁	ဆေးရုံတက်နေစဉ်အတွင်း အခြားကုထုံးများ ကုသခဲ့ရပါသနည်း။ (ဥပမာ-အစာအိမ်မှန်ပြောင်းကြည့်ခြင်း)	၁။ ကုသခဲ့ရပါသည်။	
		၂။ မကုသခဲ့ရပါ။	
၂.၃.၂	ထိုကုထုံးအတွက် ငွေကြေးပေးခဲ့ရပါသလား။	၁။ ပေးခဲ့ရပါသည်။	
		၂။ မပေးခဲ့ရပါ။	
၂.၃.၃	ထိုကုထုံးအတွက် ငွေကြေးမည်မျှပေးခဲ့ရပါသနည်း။ (ဥပမာ-ဆေးဖိုး၊ ထုံဆေးဖိုး)	ကျပ်	

၂.၄	ဆေးရုံတက်ရောက်နေစဉ်အတွင်း သွေးသွင်းကုသမှုနှင့်ဆက်စပ်သောမေးခွန်းများ		
စဉ်	မေးခွန်း	အဖြေများ	ကုဒ်
၂.၄.၁	ဆေးရုံတက်နေစဉ်အတွင်း သွေးသွင်းကုသမှု ခံယူဖူးပါသလား။	၁။ ခံယူဖူးပါသည်။	၁
		၂။ မခံယူဖူးပါ။	၂
၂.၄.၂	သွေးသွင်းဖူးပါက ဘယ်နှစ်ကြိမ်သွင်းရပါသလဲ။	ကြိမ်	၁
၂.၄.၃	သွေးသွင်းကုသမှုအတွက် ငွေကြေးပေးရပါသလား။	၁။ ပေးရပါသည်။	
		၂။ မပေးရပါ။	
၂.၄.၄	ပေးရပါက မည်သည့်အတွက် ပေးရပါသနည်း။ (ဥပမာ-သွေးအိတ်ဖိုး၊ ပိုးစစ်ခ)		
၂.၄.၅	သွေးသွင်းကုသမှုတွင် တစ်ခါသွင်းလျှင် မည်မျှ ပေးခဲ့ရပါသနည်း။	ကျပ်	

၄၂.၅	ဆေးရုံတက်နေစဉ်အတွင်း ဓာတ်ခွဲစစ်ဆေးမှုနှင့် ဆက်စပ်သော မေးခွန်းများ		
စဉ်	မေးခွန်း	အဖြေများ	ကုဒ်
၂.၅.၁	ဆေးရုံတက်နေစဉ်အတွင်း ဓာတ်ခွဲစစ်ဆေးမှု ပြုလုပ်ခဲ့ရပါသလား။	၁။ ပြုလုပ်ခဲ့ရပါသည်။	
		၂။ မပြုလုပ်ခဲ့ရပါ။	
၂.၅.၂	ပြုလုပ်ရပါက မြောက်ဥက္ကလာ ဆေးရုံကြီး အတွင်း (သို့) အပြင် ဓာတ်ခွဲခန်းတွင် စစ်ဆေးခဲ့ရပါသလား။		
၂.၅.၃	မြောက်ဥက္ကလာဆေးရုံကြီးတွင် ဓာတ်ခွဲစစ်ဆေးခဲ့ရပါက ငွေပေးရပါသလား။	၁။ ပေးရပါသည်။	
		၂။ မပေးရပါ။	
၂.၅.၄	ပေးခဲ့ရပါက စုစုပေါင်း ငွေကြေးမည်မျှ ပေးခဲ့ရပါသနည်း။	ကျပ်	
၂.၅.၅	ဆေးရုံတက်နေစဉ်အတွင်း ပြင်ပရောဂါ ရှာဖွေရေးတွင် သွားရောက်၍ ဓာတ်ခွဲ စစ်ဆေးခဲ့ရပါသလား။	၁။ စစ်ဆေးခဲ့ရပါသည်။	
		၂။ မစစ်ဆေးခဲ့ရပါ။	
၂.၅.၆	စစ်ဆေးခဲ့ရပါက စုစုပေါင်း ငွေကြေးမည်မျှ ကုန်ကျပါသနည်း။	ကျပ်	

၂.၆	ဓာတ်မှန်နှင့်ဆက်စပ်သောစစ်ဆေးမှုများနှင့်ဆိုင်သော မေးခွန်းများ		
စဉ်	မေးခွန်း	အဖြေများ	ကုဒ်
၂.၆.၁	ဆေးရုံတက်နေစဉ်အတွင်း ဓာတ်မှန်နှင့် ဆက်စပ်သော စစ်ဆေးမှုပြုခဲ့ရပါသလား။	၁။ ပြုခဲ့ရပါသည်။	
		၂။ မပြုခဲ့ရပါ။	
၂.၆.၂	ပြုခဲ့ရပါက မြောက်ဥက္ကလာဆေးရုံကြီး (သို့) ပြင်ပရောဂါရှာဖွေရေးတွင် စစ်ဆေးခဲ့ပါသလား။		
၂.၆.၃	မြောက်ဥက္ကလာဆေးရုံကြီးတွင် ဓာတ်မှန်နှင့် ဆက်စပ်သော စစ်ဆေးမှု ပြုခဲ့ရပါက ငွေကြေး ပေးခဲ့ရပါသလား။	၁။ ပေးရပါသည်။	
		၂။ မပေးရပါ။	
၂.၆.၄	ပေးခဲ့ရပါက စုစုပေါင်း ငွေကြေး မည်မျှကုန်ကျပါသနည်း။	----------ကျပ်	
၂.၆.၅	ဆေးရုံတက်နေစဉ်အတွင်း ပြင်ပရောဂါ ရှာဖွေရေးတွင် သွားရောက်၍ ဓာတ်မှန်နှင့် ဆက်စပ်သော စစ်ဆေးမှုများ ဆောင်ရွက်ခဲ့ရပါသလား။	၁။ စစ်ဆေးခဲ့ရပါသည်။	
		၂။ မစစ်ဆေးခဲ့ရပါ။	
၂.၆.၆	ပြင်ပရောဂါရှာဖွေရေးတွင် စစ်ဆေးခဲ့ရပါက စုစုပေါင်း ငွေကြေး မည်မျှ ကုန်ကျပါသနည်း။	----------ကျပ်	

ဆေးကုသမှုအတွက် ကုန်ကျစရိတ်များ

အရေးပေါ်လူနာလက်ခံဌာန/ ခွဲစိတ်ကုသမှုဌာန

ဆေးရုံတွင်လူနာရရှိခဲ့သော ကုသမှုများကိုဖော်ပြပါ။ (ထိုးဆေးများ/သောက်ဆေးများ/Drip Set/Blood Transfusion Set/ Cotton/ Ointment/ Dressing/ Operations) (Treatment Chart ကို Review လုပ်၍ ကုသမှုနှင့်စမ်းသပ်စစ်ဆေးမှုများကို ရက်စွဲနှင့်တကွ မှတ်တမ်း တင်ရန်။)

ဆေး/ကုသမှု စတင်သည့်နေ့	ဆေး/ကုသမှု အမျိုးအစား	Dose of Treatment	Total Amount	Unit Cost	Total Cost	Source (Patient/ Hospital)

ဆေးရုံတွင်လူနာရရှိခဲ့သော စမ်းသပ်စစ်ဆေးမှုများအား ဖော်ပြပါ။

(Imaging X-Ray CT, MRI, Ultrasond, ECG, Blood Sugar, Histopathology, Biochemistry, Haematology, Endoscopy, ECG) (By Patient's Chart Review)

ရက်စွဲ	စမ်းသပ်မှု အမျိုးအစား	Quantity	Unit Cost	Total Cost	Source (Patient/ FOC)	စမ်းသပ် စစ်ဆေးသည့် နေရာအမည်

Questionnaire for Out-of-pocket expenditure for medicines and investigation costs of surgical cases at North Okkalapa General and Teaching Hospital

Date:

ID-_____/_____/_____				
Section 1: Questionnaires for Socio-demographic characteristics				
No	Question	Answer		Code
1.	Age of respondent	Years		
2.	Gender	1. Male	1	
		2. Female	2	
3.	Marital status	1. Single	1	
		2. Married	2	
4.	Education	1. Illiterate	1	
		2. Can read & write only	2	
		3. Primary school	3	
		4. Middle school	4	
		5. High school	5	
		6. Graduate	6	
5.	Occupation of respondent	1. Dependent	1	
		2. Government	2	
		3. Self-employed	3	
		4. Company-employed	4	
		5. Manual worker	5	
		6. Student	6	
		7. Farmer	7	
6.	Address	1. Yangon region		
		2. Other regions		
8.	Family members			

9.	Monthly household income		
10.	Monthly household expenditure		
11.	Date of admission		
12.	Date of discharge		

Section 2: Questionnaires for Out-of-pocket expenditure during the hospitalization.

2.1 Out-of-pocket expenditure for medicine and other commodities.

No.	Questions	Answers	Code
2.1.1	From admission to discharge, how much did you spend for medicine and including other commodities such as exam gloves, Ryle tube, urinary catheter etc.?		

2.2 Out-of-pocket expenditure for Operative procedure during hospitalization

No.	Questions	Answers	Code
2.2.1	Did you undergo any operation during hospitalization?	1.Yes 2.No	
2.2.2	If yes, how many times of operation?	--------	
2.2.3	If the operation has done, What type of operation for Emergency or elective? (chart review)	1.Emergency 2.Elective	
2.2.4	Did you pay for this operation during hospitalization?	1.Yes 2.No	
2.2.5	If yes, how much did you spend for operation? (e.g., for medicines, for anesthesia, for catgut etc.)	------ Kyats	

2.3 Out-of-pocket expenditure for other interventions during hospitalization			
No.	**Questions**	**Answers**	**Code**
2.3.1	Did you get any other intervention? (e.g. Endoscopy,) (chart review)	1.Yes 2.No	
2.3.2	Did you pay for this intervention?	1.Yes 2.No	
2.3.3	How much did you spend for this intervention? (e.g., for medicines, for local anesthesia etc.		

2.4 Out-of-pocket expenditure for blood transfusion during hospitalization			
No.	**Questions**	**Answers**	**Code**
2.4.1	Did you get any blood transfusion during hospitalization?	1.Yes 2.No	
2.4.2	How many times did you get blood transfusion?		
2.4.3	Did you pay for this blood transfusion?	1.Yes 2.No	
2.4.4	If yes, what about for your pay? (e.g., for blood bags, Screening tests, etc.)		
2.4.5	How much did you spend for a single episode of blood transfusion?	-----Kyats	

2.5 Out-of-pocket expenditure for laboratory investigations during hospitalization			
No.	**Questions**	**Answers**	**Code**
2.5.1	Have you done any laboratory investigations during hospitalization?	1.Yes 2.No	
2.5.2	If yes, have you done investigations at NOGTH laboratory or private institution?		
2.5.3	If NOGTH laboratory, did you spend for laboratory investigations?	1.Yes 2.No	
2.5.4	If yes, how much did you spend for laboratory investigations?	----- Kyats	
2.5.5	Have you done laboratory investigations at private institution?	1.Yes 2.No	
2.5.6	If yes, how much did you spend for laboratory investigations at private institution?	------Kyats	

2.6 Out-of-pocket expenditure for imaging investigations during hospitalization			
No.	**Questions**	**Answers**	**Code**
2.6.1	Have you done imaging investigations during hospitalization?	1.Yes 2.No	
2.6.2	If yes, have you done investigation at NOGTH or private institution?		
2.6.3	If NOGTH, did you spend for imaging investigations?	1.Yes 2.No	
2.6.4	If yes, how much did you spend for imaging investigations?	------Kyats	
2.6.5	Have you done imaging investigations at private institution?	1.Yes 2.No	
2.6.6	If yes, how much did you spend for imaging investigations at private institution?	------Kyats	

Checklist for OOP expenditure of drugs during hospitalization at Emergency Department (ED) and Surgical Units of NOGTH including oral medicines, injections, drip sets, blood sets, lotions, ointments (Reviewing with treatment chart according to the dates and times record)								
No.	**Starting date of treatment**	**Name of Drugs**	**Dose of Tx**	**Total amount**	**Unit cost**	**Total Cost**	**Tx at ED or surgical unit**	**Source of funding (patient/FOC)**
1.								
2.								
3.								
4.								
5.								
6.								
7.								
8.								
9.								
10.								

Tx= Treatment

Checklist for out-of-pocket expenditure of investigations during hospitalization in Emergency Department (ED) and Surgical units of NOGTH including ECG, Ultrasound, X-rays, CT scan, MRI (Reviewing with treatment chart according to the dates and times record)							
No.	**Starting date**	**Name of investi-gations**	**Quantity**	**Unit cost**	**Total cost**	**Tx at ERC or Surgical Unit or Private clinic**	**Source of funding (patient/ FOC)**
1.							
2.							
3.							
4.							
5.							
6.							
7.							
8.							
9.							
10.							

Medical Record Review

1. Identification number
2. Patient's age
3. Patient's gender
4. Ward
5. Date and time of admission
6. Date and time of discharge
7. Discharged Diagnosis
8. Type of Procedure of Operation
9. Onset of Operation
10. Extent of Operation
11. Treatment prescribed by Surgeons

    Frequency and Duration Injections

    ---------- ----------

    ---------- ----------

    ---------- ----------

    Oral drugs

    ---------- ----------

    ---------- ----------

    ---------- ----------

12. Investigations done in NOGTH Frequency

    ---------- ----------

    ---------- ----------

    ---------- ----------

13. Investigations done in private institution Frequency

    ---------- ----------

    ---------- ----------

    ---------- ----------

Annex (4) Gantt Chart

Month	August				September				October				November				December			
Week	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Protocol preparation																				
Protocol defend																				
Pilot study – Preparation for Data collection																				
Data collection																				
Data entry and analysis																				
Preparation for Grand Presentation																				
Thesis preparation																				
Submission of Thesis (Draft)																				
Thesis defend																				
Correction and Submission of thesis																				

Annex (5) Curriculum Vitae

Name	: Dr Kyaw Nay Zar Hlaing
SAMA Number	: 24689
Date of Birth	: 7.3.1983
Nationality	: Myanmar
Religion	: Buddhist
Academic Qualification	: M.B.,B.S (2006) University of Medicine ,Mandalay
NRC No	: 5/KaLaHta(N) 123366
Father's Name	: U Htay Hlaing
Employment History	1. Assistant Surgeon, Yangon General Hospital of Medical (10.8.2019 to date) 2. Assistant Surgeon, North Okkalapa General and Teaching Hospital, Yangon (20.6.2017 to 10.8.2019) 3. Station Medical officer, Tayaung Station Hospital, Sagaing Division (12.6.2013 to 20.6.2017) 4. Assistant Surgeon, Banmaw General Hospital, Kachin State (15.6.2009 to 12.6.2013)
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