HEALTH

Flagship Blueprint

(2020-2023)

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ABBREVIATION

MDG	Millennium Development Goal
NCD	Non Communicable Diseases
FYP	Five Year Plan
HPV	Human Papillomavirus
HR	High Risk
JDWNRH	Jigme Dorji Wangchuck National Referral Hospital
GI	Gastro Intestinal
LBC	Liquid Based Cytology
KAP	Knowledge Attitude Practice
PSC	Project Steering Committee
MoH	Ministry of Health
DMS	Department of Medical Services
DoPH	Department of Public Health
DoMSHI	Department of Medical Supplies and Health Infrastructure
DoS	Department of Services
DTMS	Department of Traditional Medicine Services
BNCA	Bhutan Narcotics Control Agency
BMHC	Bhutan Medical Health Council
DRA	Drug Regulatory Authority
RCDC	Royal Center for Disease Control
TWG	Technical Working Group
PMU	Project Management Unit
PMO	Prime Minister's Office

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Executive Summary

The current health system with its focus on primary health care has remained the backbone of health services in the country and contributed immensely to health outcomes in the past 5 decades, with Bhutan achieving most of the Health MDG goals. The rapid socio-economic development, the national goal of Universal Health Coverage and the epidemiologic transition of diseases to more NCDs and Cancers has resulted in more demand for tertiary healthcare services, expansion of health facilities and increasing patient referrals, leading to escalating costs for healthcare provision. The budget allocation for health services has not seen a corresponding increase; in fact the Health Ministry's annual budget allocation has been decreasing over the years as a proportion of the annual government budget. Recognizing that Gastric and Cervical cancers contribute to most of the cancer burden and mortality, this Flagship project specifically targets prevention of Gastric, Cervical and Breast cancers, by introducing early screening programs for Gastric and Breast cancers and improving on the existing cervical cancer screening program. The strategies involve the introduction of new screening tests with the goal of reaching all the target populations and providing treatment, sustained health advocacy, and having adequate human resources in place.

The Flagship is proposed to be implemented over a period of 3 years, from 2020-2023, and the estimated fund requirement is Ngultrum One Thousand One Hundred Nine million and Five Hundred Thousand and Seventy Two Thousand (Nu. 1109.572 million).

1. INTRODUCTION

Bhutan has a Healthcare service based on a primary health care approach and broadly structured into a three-tiered level. The Basic Health Units (BHUs) function as the primary care centers, the district hospitals provide secondary care, and regional and national referral hospitals function as tertiary centers. Healthcare is provided totally by the public sector, with very minimal private involvement, and the Constitution also advocates provision of free healthcare. The current health system has contributed immensely to national health outcomes since its inception, with Bhutan also achieving most of the health related MDGs. However, with BHUs limited in providing primary healthcare service, people in rural area of Bhutan, which constitutes 62%1 of Bhutan's population, experience referrals to higher/ secondary level care facilities for basic diagnostic and curative services. At the same time, the country is facing a serious shortage of required human resources for healthcare services, with 68% and 42% gaps in required specialists and general doctors, respectively2. The limitations of human resources and facilities for specialized care and treatment has resulted in an increasing trend of referrals out of the country, late diagnosis and delayed treatment, leading to poor health outcomes such as unnecessary deaths and disabilities. This has the negative impact on the economy of the country besides an immediate financial burden to patients and patient parties. Moreover, the rugged terrain and poor road connectivity also hampers access to secondary and tertiary care for this group.

As the country develops, the life expectancy is increasing and disease patterns of the population are changing. The non-communicable diseases (NCDs) have become a major national public health concern. Despite implementing the national multi-sectoral strategy and the nationwide roll-out of the World Health Organization's package of essential NCDs interventions, NCDs constitute 70% of the national disease burden. There is a high prevalence of NCD risk factors such as alcohol use (43%), raised blood pressure (36%) and overweight (33%). At the same time, NCDs service coverage in the country is low and health seeking behavior of the population is poor. The cancers are being diagnosed at late stages and the most common cancers are stomach cancer, cervical cancer and oral cancer, which are preventable cancers. However, there is not much effort being put in preventing these cancers, both in terms of programmatic interventions or financial resources.

Therefore, in order to complement the 12th Five Year Plan of the Health sector, the health flagship project has been commissioned by the government. The flagship project aims to accelerate health gains by targeting areas with significant health outcomes but not adequately covered by the 12FYP. This provides an opportunity for the health ministry to focus on preventable cancers, which otherwise would receive very little or no programmatic focus in this current FYP.

2. CURRENT SCENARIO

As per the population based cancer registry of Bhutan 2014-2018, the age-adjusted incidence rate per 100,000 populations is 64 and 89.8 for male and female, respectively. The cumulative risk of getting cancer among females is 1 in 9 (11%) and among male is 1 in 11 (9%). The top five cancers in male are Stomach, Oesophagus, Liver lung and Rectum cancer (Figure 1), whereas Cervix Uteri, Stomach, Breast, Thyroid and Ovary cancers are five leading cancers in females (Figure 2). Around 62% of cancer cases were referred out of the country for treatment and confirmation of diagnosis. By district wise, the highest number of stomach cancer case was from Paro, followed by Wangdi Phodrang, Punakha, Tashigang and Haa, whereas the highest number cervical cancer case was from Tashigang, followed by Mongar, Wangdi Phodrang, Chukha and Samtse.

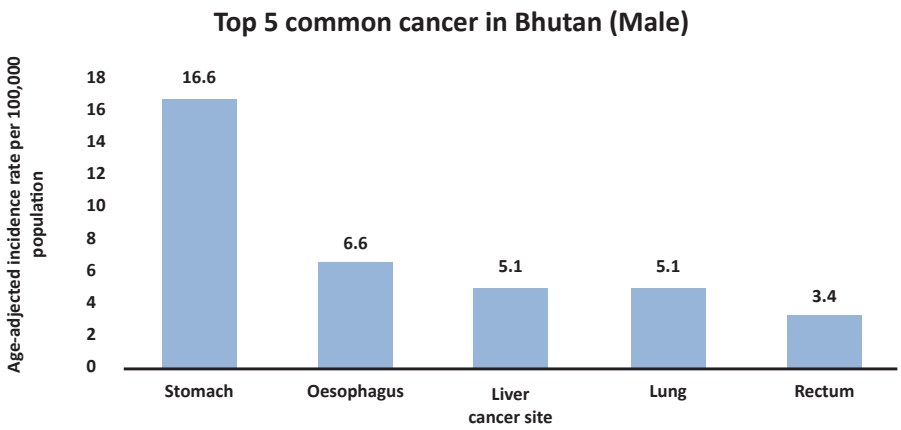

Figure 1: Top 5 common cancers in Bhutan (male)

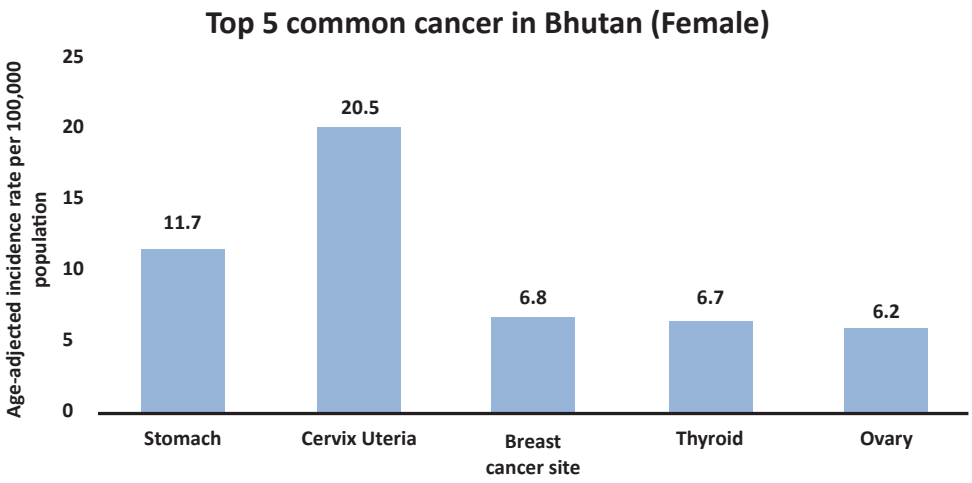

Figure 2: Top 5 common cancers in Bhutan (female)

The age-adjusted cancer mortality rate in Bhutan per 100,000 populations is 30.7 and 31.5 for male and female, respectively. The leading cancer deaths in male is due to stomach cancer, followed by Oesophagus, Liver, Lung and Gallbladder cancer (Figure 3) and in female is due to cervix uteri, followed by Stomach, Lung, Ovary and Liver cancer (Figure 4). The First Report on the Prevalence and Epidemiology of Helicobacter pylori in Bhutan has shown almost all Bhutanese carry H. pylori bacteria, with the prevalence rate of 66% to 82%. Through genotyping, H. pylori strains in Bhutan are found to be very virulent which are responsible for causing gastric cancer7.

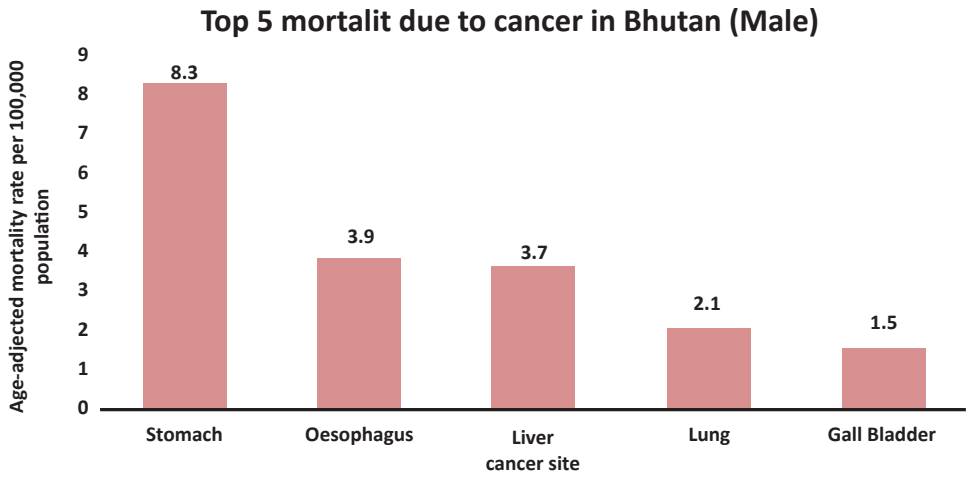

Figure 3: Top 5 mortality due to cancer in Bhutan (male)

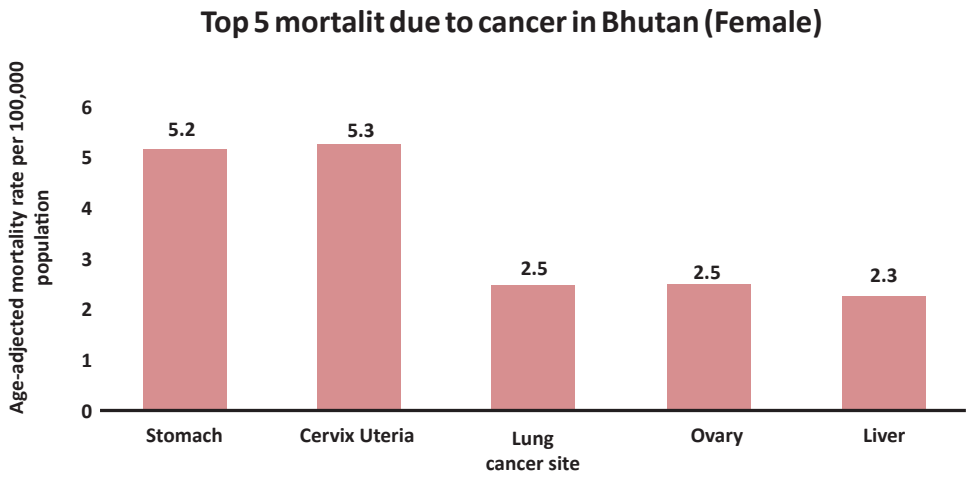

Figure 4: Top 5 mortality due to cancer in Bhutan (female)

In terms of cervical cancer, Bhutan instituted a PAP smear program for women in 2006 as a screening program and HPV vaccination program for adolescent girls in 2010 and a Pap smear screening program for women in 2006. The HPV vaccination was co-financed by Australian Cervical Cancer Foundation (ACCF) and Royal Government of Bhutan (RGoB) in 2018. The HPV vaccination coverage is around 97%, however, the PAP smear program coverage is only around 66% despite having the functional program for nearly two decades.

The latest review of the national PAP smear program has found that there is a poor coordination and linkage between screening program and treatment centers, which needs to be strengthened. The overall percentage of abnormal smears in the country with ASCUS as cut-off was 3.0% to 3.4%, and noticed a high rate of unsatisfactory smear i.e, 6.2% to 7.1%.

On the doubtful cases referred to JDWNRH, nearly 60% of the diagnosis given by the cyto-technicians of referring cyto centers was found to be erroneous. The review also found the problem in loss of follow-up because of a long turnaround time of the procedure and the requirement of multiple visits (or shorter screening interval). There were some issues with sample transportation and shortage of pathologists.

Therefore, more sensitive screening tests and comprehensive patient-centered or population friendly screening programs are found to be necessary to achieve the desired outcome of the program. A HPV prevalence study done among the population of Thimphu has shown that the HPV prevalence among the general population was 26%. The study also found that infections with vaccine types HPV16 and /or 18 accounted for 24% of high-risk human papillomavirus (HR-HPV) positive in the general population and 70% of cervical cancer.

Unlike cervical cancer, there is no national screening program for gastric cancer and breast cancer. Breast Cancer is the fourth most common cancer among women in Bhutan. With increasing life expectancy and changes in lifestyle (more use of tobacco, alcohol and changes in diet), coupled with a non-existent program on breast cancer prevention, the incidence of breast cancer is expected to keep rising.

Goals, objectives and action areas

1. Objectives:

The health flagship will contribute towards the above goals through the following objectives:

a. Reduce Gastric cancer incidence and mortality through early screening and prevention
b. Reduce cervical cancer incidence and mortality through early screening and prevention
c. Reduce breast cancer incidence and mortality through early screening and prevention

2. Target:

The health flagship will aim to achieve the following measurable targets by 2023

A. Gastric cancer

- All target population (18-75 years) are screened for H. pylori
- All screened population (H.pylori positive) receive triple therapy treatment
- All high-risk target population (40-75 years) are screened for gastric cancer and managed

B. Breast cancer

- All target population (40-65 years) are screened for breast cancer and managed

C. Cervical cancer

- All eligible women (30-65 years) are screened for cervical cancer
- All screened positive women receive treatment/management

3. STRATEGIES AND KEY ACTIONS

1. STRATEGIC OBJECTIVE: REDUCE GASTRIC CANCER INCIDENCE AND MORTALITY THROUGH EARLY SCREENING AND PREVENTION

KEY STRATEGIES/ACTIONS:

A. GC1: Mass eradication of h.pylori infection

B. GC2: Early gastric cancer screening and treatment

C. GC3: Enhanced advocacy and awareness program

2. STRATEGIC OBJECTIVE 2: REDUCE CERVICAL CANCER INCIDENCE AND MORTALITY THROUGH EARLY SCREENING AND PREVENTION

KEY STRATEGIES/ACTIONS:

A. CC1: early screening and treatment of cervical pre-cancers/cancers

B. CC2: enhanced advocacy and awareness program

3. **STRATEGIC OBJECTIVE 3:** REDUCE BREAST CANCER INCIDENCE AND MORTALITY THROUGH EARLY SCREENING AND PREVENTION

KEY STRATEGIES/ACTIONS:

A. BC1: early screening and treatment of breast cancer

B. BC2: enhanced advocacy and awareness program

PERFORMANCE FRAMEWORK

1. *Implementation plan*
2. *Reporting Mechanism*
3. *Plan of action*
4. *Monitoring and Evaluation Frame Work*

1. STRATEGIC OBJECTIVE: REDUCE GASTRIC CANCER INCIDENCE AND MORTALITY THROUGH EARLY SCREENING AND PREVENTION

KEY STRATEGIES/ACTIONS:

A. GC1: MASS ERADICATION OF H.PYLORI INFECTION

Considering the high prevalence of H. pylori infection in Bhutan, all populations (18- 75 years) will be screened for H. Pylori infection using rapid stool antigen test/Urea Breath test. All populations with H. pylori infection will be treated with triple therapy. The screening and treatment will be done as per the screening guideline.

Indicator	2020-21	2021-22	2022-2023
Target population screened for H. pylori infection (18-75 years)	40%	90%*	100%*
Treatment of screened positive (H pylori infection) cases	100 % of screened positive case	100 % of screened positive case	100 % of screened positive case

**Cumulative figure*

B. GC2: EARLY GASTRIC CANCER SCREENING AND TREATMENT

All the target population (40-75 years) will be screened for early gastric cancer through endoscopy services and providing the necessary treatment. The screening and treatment will be done as per the screening guideline.

Indicators	2020-21	2021-22	2022-23
Target population screened for early gastric cancer	40%	90%*	100%*

**Cumulative figure*

C. GC3: ENHANCED ADVOCACY AND AWARENESS PROGRAM

Health advocacies and awareness will be enhanced through training programs of health workers on prevention, early detection and treatment, and public awareness on gastric cancer for the general population.

2. STRATEGIC OBJECTIVE 2: REDUCE CERVICAL CANCER INCIDENCE AND MORTALITY THROUGH EARLY SCREENING AND PREVENTION

KEY STRATEGIES/ACTIONS:

A. CC 1: EARLY SCREENING AND TREATMENT OF CERVICAL PRE-CANCERS/CANCERS

All the target population (women aged 30-65 years) will be screened for Human papillomavirus (HPV) infection using a highly sensitive HPV test and liquid based cytology. All women infected with HPV and have abnormal cytology will be treated according to the abnormality. The screening and treatment will be done as per the screening guideline.

Indicator	2020-21	2021-22	2022-23
Target population screened for cervical cancer	40%	90%*	100%*
Treatment of screened positive cases (pre-cancers)	100 % of screened positive case	100 % of screened positive case	100 % of screened positive case

**Cumulative*

B. CC2: ENHANCED ADVOCACY AND AWARENESS PROGRAM

Health advocacies and awareness will be enhanced through training programs of health workers on prevention, early detection and treatment, and public awareness on cervical cancer for the general population.

3. STRATEGIC OBJECTIVE 3: REDUCE BREAST CANCER INCIDENCE AND MORTALITY THROUGH EARLY SCREENING AND PREVENTION

KEY STRATEGIES/ACTIONS:

A. BC 1: EARLY SCREENING AND TREATMENT OF BREAST CANCER

All the target population (women aged 40-65 years) will be screened for Breast cancer using mammography services and Clinical Breast Examination. The screening and treatment will be done as per the screening guideline.

Indicators	2020-21	2021-22	2022-23
Target population (40-65 years) screened for breast cancer	20%	60%*	100%*

B. BC2: ENHANCED ADVOCACY AND AWARENESS PROGRAM

Health advocacies and awareness will be enhanced through training programs of health workers on prevention, early detection and treatment, and public awareness on breast cancer including self breast examination for the general population.

1. IMPLEMENTATION PLAN

For the successful implementation of the flagship project the Project Management Unit (PMU) will be established in MoH. The PMU will be staffed with a project manager, 3 project coordinators, one Monitoring and evaluation officer, administrative assistant and an accountant identified from within MoH. The project Steering Committee (PSC) will be formed to give the strategic guidance for the implementation of the project. The existing high level committee of the MoH will act as the PSC for the project.

Composition of the PSC:

1. The Minister, MoH- The Chair
2. The Secretary, MoH- The Vice-Chair
3. Head, DMS- Member
4. Head, DoPH- Member
5. Head, DOMSHI- Member
6. Head, DTMS- Member
7. Head, DoS- Member
8. President, KGUMSB- Member
9. Head, BNCA- Member
10. Head, BMHC- Member
11. Head, DRA- Member
12. Head, JDWNRH- Member
13. The Project Manager, PMU, Health Flagship Project- Member Secretary

A technical working group consisting of the experts will be formed to give technical guidance for the smooth implementation of the project.

1. Gynecologist
2. Medical specialist
3. Surgeon
4. Onco-surgeon
5. Pathologist
6. Microbiologist
7. Radiologist
8. A representative from RCDC
9. Health Promotion Division

For the implementation of the screening programs, the PMU will work closely with the districts, relevant departments and programs within MoH.

At the district level, focal persons each will be identified to support the PMU in coordinating screening programs and reporting the status to the PMU.

2. REPORTING MECHANISM

The PMU will report to the Prime Minister's Office (PMO) on the progress of the program monthly, quarterly and annually. REPORTING MECHANISM

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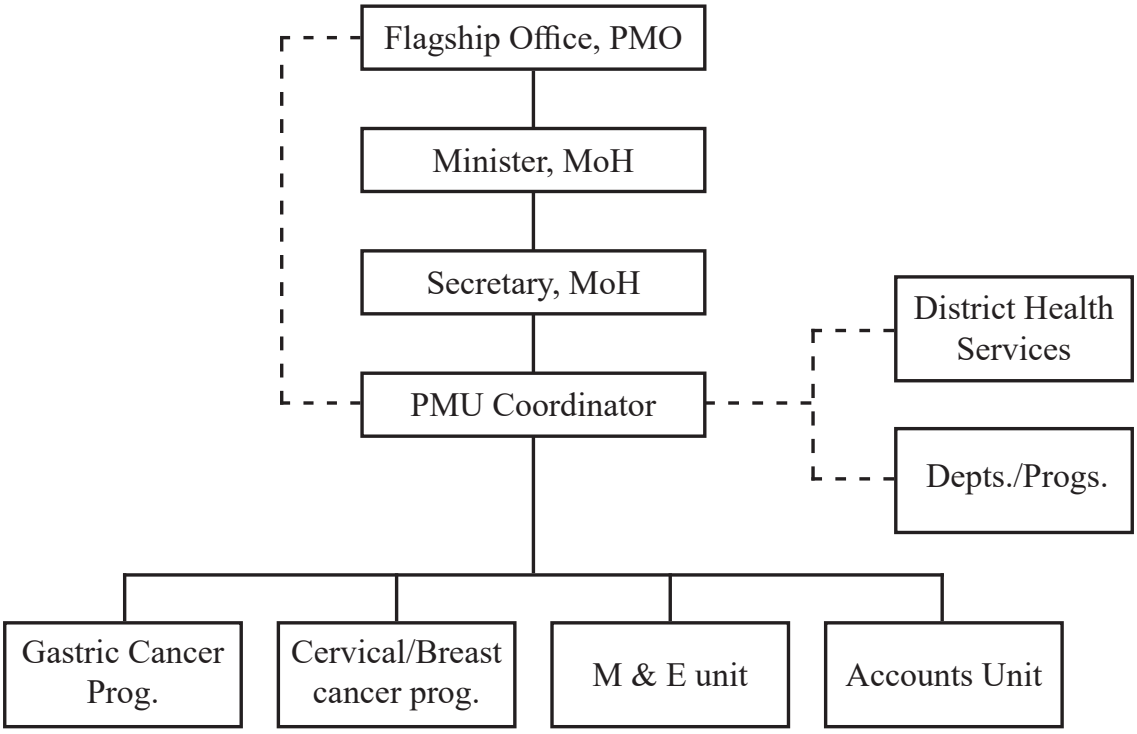

Image 3: Organogram of PMU

3. PLAN OF ACTION

TABLE 1: IMPLEMENTATION OF GASTRIC CANCER SCREENING PROGRAM

		2020-21				2021-22				2022-23			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
1	Development of screening guideline												
2	Procurement of H. pylori test kit and treatment packs (Triple Therapy)												
3	Screening and treatment service for H. Pylori infection												
4	Procurement of endoscopy machines												
5	Endoscopy services												
6	Training of health workers												
7	Develop Health Promotion packages												
8	Advocacy and awareness program												

TABLE 2: IMPLEMENTATION OF CERVICAL CANCER SCREENING PROGRAM

		2020-21				2021-22				2022-23			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
1	Development of screening guideline												
2	Procurement of HPV testing equipment and test kits												
3	Procurement of Liquid based cytology equipment and test kits												
4	Screening and treatment for cervical cancer												
5	Procurement of gynecology equipments												
6	Procurement of reagents and consumables												
7	Training of health workers												
8	Develop Health Promotion packages												
9	Advocacy and awareness program												

TABLE 3: IMPLEMENTATION OF BREAST CANCER SCREENING PROGRAM

		2020-21				2021-22				2022-23			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
1	Development of screening guideline												
2	Procurement of mammogram machines												
3	Screening and treatment of breast cancer												
4	Training of health workers												
5	Develop Health Promotion packages												
6	Advocacy and awareness of program												

4. MONITORING AND EVALUATION FRAMEWORK

To ensure successful and timely implementation, it is important to have a comprehensive monitoring and evaluation framework. This would also allow for the measurement of progress of the project and its impact.

	Indicator	Unit	Baseline	2021	2022	2023
1	Proportion of women (30-65 years) screened for Cervical Cancer	Percentage	NA	40%	90%	100%
2	Proportion of women treated for precancerous cell	Percentage	NA	100 % of screened positive case	100 % of screened positive case	100 % of screened positive case
3	Proportion of women (40-65) screened for breast cancer	Percentage	NA	20%	60%	100%
4	Proportion of target population (18-75) screened for H. Pylori infection	Percentage	NA	40%	90%	100%
5	Proportion of screened positive cases treated for H.pylori infection	percentage	NA	100 % of screened positive case	100 % of screened positive case	100 % of screened positive case
6	Proportion of target population (40-75 years) screened for gastric cancer	percentage	NA	40%	90%	100%

BUDGET ESTIMATE

The total estimated budget for implementing the Health Flagship is 1109.572 million ngultrum for the period of the 3 years.

TABLE4: TOTAL BUDGET REQUIRED IN NGULTRUM (million)

Sl. No.	Strategic Area	2020-21	2021-22	2022-23	Total
1	Early Screening and detection of Gastric Cancers	76	390	150	616
2	Early Screening and detection of Cervical Cancer	10	200	100	310
3	Early Screening and detection of Breast Cancer	0	84	60	144
4	Project management (including M&E)	14	10	10.572	34.572
5	Training of Health workers	0	5	0	5
	Total	**100.00**	**689.00**	**320.572**	**1109.572**