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# GRANT PROPOSAL

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Cancer Prevention and Early Detection Program, Province 2, Nepal

BINAYTARA FOUNDATION  
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## EXECUTIVE SUMMARY

Nepal is experiencing a surging burden of non-communicable diseases such as cancer but is woefully equipped to handle this burden as its oncology workforce and infrastructure is poor. Consequently, cancer mortality rates are disproportionately higher than in developed countries, especially for the types of cancers that are preventable or curable when detected early. One Nepali woman diagnosed with cancer while attending a university in the U.S. summed up Nepal's cancer crisis well. "People don't get cancer in Nepal," she said. "They just get sick and die." Her comment speaks as much to the country's general lack of awareness of cancer as it does to the lack of access to care.

To help fill this void, the Binaytara Foundation, a 501c3 nonprofit based in Washington state, is implementing a cancer prevention and early detection program in southeast Nepal as we establish the first comprehensive cancer center in the region. The cancer center will be based in Province No. 2, the nation's most populous province at about 6 million. We've partnered with the local city government and over a dozen influential physician leaders including Seattle Cancer Care Alliance's Dr. Julie Gralow, Dr. Axel Grothey and more. Once established, the cancer prevention and early detection program will provide service to 5,000 patients annually in a population area of about 15 million from both Nepal and Bihar, India. The project includes outreach, education, screening and diagnostic services.

The lack of cancer prevention and early detection program in the region is a problem that requires urgent solutions. We have set aggressive but achievable goals to address this issue. Our goal is to have the program fully established by December 2019 including establishment of laboratory and radiology services. The project will be evaluated based on two metrics: 1) were the proposed programs and services established by each respective deadline, and 2) did the program provide education, screening and treatment to the targeted number of people within the respective timeframes?

The Binaytara Foundation has a proven track record of successfully implementing more than a dozen impactful healthcare projects since it was founded in 2007. For instance, the Binaytara Foundation in 2015 helped establish Nepal's first bone marrow transplant center in partnership with the University of Illinois and Civil Service Hospital in Kathmandu. Most recently, the foundation in partnership with the state government of Madhya Pradesh in India developed the state's first public palliative care training facility to provide free training to nurses and physicians. The center will help expand palliative care services to all 51 counties in the state. The Binaytara Foundation is also in talks with the Indian state of Punjab to establish a similar palliative care project.

The total budget for the cancer prevention and early detection program is \$271,571. This amount includes partial costs of large diagnostic equipment purchase as well as personnel costs and other expenses for a 17-month period. Part of this funding will be generated from program service revenue and in-kind contributions. The Binaytara Foundation is requesting \$25,000 annually from the American Nepal Medical Foundation for a 3-year period to cover the ongoing expenses.

## NEEDS STATEMENT

Like the rest of South Asia, the low-income country of Nepal is experiencing a surging burden of non-communicable diseases such as cancer<sup>1,2</sup>. As it stands, Nepal is woefully unprepared to handle this burden<sup>2,3</sup>. For instance, Province 2 in Nepal's southeastern region does not have a cancer treatment center, and public awareness of cancer in the population is very low. As a result, the majority of cancer patients in Province 2 and the greater underdeveloped region either go undiagnosed or are diagnosed at a terminal stage<sup>1,4,5,6</sup>. The Binaytara Foundation is developing a preventive oncology program in Nepal's Province 2 to provide screening services and to alleviate this growing cancer burden. The preventive oncology program is the first step toward developing a comprehensive cancer center in the region that'll serve an estimated 20,000 patients annually.

The common perception about Nepal is that it is a mountainous country. Province 2 is geographically and culturally very different. The most populous among Nepal's seven provinces, Province 2 rests on the southeastern lowlands and borders the Indian state of Bihar on the south. The province is home to nearly 6 million residents, commonly known as Madhesis, with unique socio-cultural and linguistic backgrounds. This densely populated province lacks a comprehensive cancer center or any type of preventive cancer care<sup>3,6,7</sup>. In addition, these people face economic, cultural, and linguistic barriers when traveling for care outside the region<sup>3</sup>.

Cancer screening services are needed to reduce the cancer burden. The Center for Disease Control and Prevention (CDC) lists four cancers -- cervical, breast, lung, and colorectal -- among cancers that can be detected early to reduce the risk of death. No screening data exists for three out of those four: breast, lung and colon. Cervical cancer, one of the most preventable and treatable cancers, is the most frequent cancer among women in Nepal, according to the Human Papillomavirus Information Center and less than 3% of women in the recommended age group (21 to 65 years of age) are currently screened<sup>3</sup>. That means 1.6 million women in Province 2 go without cervical cancer screening<sup>3</sup>. Similarly, a large number of women and men continue to die from colon, lung and breast cancer<sup>1</sup>.

Other cancer prevention services such as outreach and education are also needed to decrease the use of tobacco products. The practice of chewing non-smoking tobacco such as *paan*, *gutkha*, and *khaini* is also very common among men in Province 2. The World Health Organization (WHO) Nepal Factsheet on Tobacco (2018) states that 30.8% of Nepal's population between the ages of 15 and 64 uses tobacco, with 48.1% of men and 14.1% women<sup>8</sup>. Studies suggest people who smoke are 23 times more likely to develop lung cancer than those who don't smoke<sup>9</sup>. Given these statistics, it is no surprise that lung cancer is the most frequent cancer among men in Nepal, including the residents of Province 2<sup>10</sup>.

The Binaytara Foundation co-founder Dr. Binay Shah, an oncologist and hematologist, recalled his most recent visit to Province 2 in June 2018. "Smoking is so prevalent on the street, in the restaurants, in offices, and in vehicles to the point that you will inhale enough second-hand smoke to cause cancer by just being out there." Such high exposure to smoking, coupled with lack of proper screening and treatment puts not only the smokers but also the non-smokers in this province at a very high risk for death from lung cancer. Thanks to the government of Nepal's effort to implement the WHO Framework Convention on Tobacco Control by raising taxes on tobacco products and requiring warning of tobacco's harmful effects on health while advertising these products, the number of people using tobacco declined 8 percent since 2007<sup>10</sup>. However, these efforts may not be sufficient to significantly minimize the risk of lung cancer among Province 2 residents because many of them can't read or understand the warnings that are written in Nepali or English. They also have access to cheaper tobacco such as home-made cigarettes and smuggled tobacco products from India. In addition to lung cancer screening services for high-risk

individuals, a comprehensive tobacco cessation campaign that incorporates the socio-cultural and geographic factors of this region is required to reduce the risk of lung cancer and other tobacco-related cancers among people of Province 2.

To tackle these problems, the Binaytara Foundation has partnered with the city of Ramgopalpur in Province 2 to establish a comprehensive cancer center. The center will serve a population area of about 15 million, including those from Province 2, the surrounding provinces, and from the neighboring Indian state of Bihar. The city of Ramgopalpur is centrally located in Province 2 about 16 kilometers northwest of the province capital of Janakpur and about the same distance from the state of Bihar in India, making it an ideal location to serve this region. The Binaytara Foundation Cancer Center will provide low-cost cancer screening, diagnostic, and treatment services to this densely populated region with its unique culture and a grave need for cancer services.

As part of this comprehensive cancer center and for the purposes of this proposal, we will establish a preventive oncology department. It will include cancer prevention and early detection services that incorporate community education, diagnostic services, and screening services for cervical, breast, lung, and colorectal cancers. It will serve the 5.4 million residents of Province 2 along with patients from other Provinces in Nepal and Bihar, India.

## GOALS

The overarching goal of this preventive oncology program is to provide evidence-based cancer screening, early detection, and prevention services to the residents of Province 2 and surrounding areas. The Binaytara Foundation began its preventive oncology program consisting of cancer education, screening, and early detection in August 2018 in Ramgopalpur Municipality of Province 2. The program includes:

- recruiting and training healthcare providers to provide these services;
- establishing a community education and outreach program;
- developing diagnostic services such as a pathology laboratory and radiology unit;
- providing colon, breast, cervical and lung cancer screening services to the 5.4 million residents of Province 2

## OUTCOMES

The outcomes for the Binaytara Foundation preventive oncology program are:

- **To recruit and train healthcare providers (physicians, nurses, radiology and lab technicians) to provide cancer education, screening and early detection services by December 2018;**
- **To establish clinical laboratory services by December 2018;**
- **To establish pathology services by March 2019;**
- **To establish specialized radiology services by June 2019;**
- **To identify contributing factors that create both barriers and opportunities for local populations who may be at risk of cancer by June 2019;**
- **To develop and implement a comprehensive cancer education and tobacco cessation program by June 2019;**

- **To utilize the U.S. Preventive Services Task Force guidelines to screen at least 10% of eligible population for cervical, breast, colon, and lung cancers by December 2019.**

## **ACTIVITIES**

Earlier in 2018, the Binaytara Foundation signed a memorandum of understanding with the city government of Ramgopalpur and the Binaytara Cancer Trust, Nepal (the Binaytara Foundation's sister organization in Nepal) to collaborate on a project to establish a comprehensive cancer center that will cater to patients from Province 2 as well as those from the neighboring provinces in Nepal and India. As part of this project, the cancer prevention and early detection program was started in August 2018, which is expected to be fully established by June 2019. The cancer prevention and early detection program will include the following activities:

### **Preventive Oncology Team Development:**

In August 2018, the Binaytara Foundation (BTF) and Binatyara Cancer Trust (BCT) recruited a general practitioner physician to lead the preventive oncology program and rented a building in Ramgopalpur to temporarily house the preventive oncology program. Two nurses, one laboratory technician, one radiology technician, one janitor, and a receptionist will be recruited for this program by October 15, 2018. BTF and BCT have also recruited several volunteers from the U.S. and Nepal with expertise in oncology and community education to help develop the screening services and cancer education program. These volunteers will train the preventive oncology staff in various procedures specific to their job responsibilities. The team members will also be trained on the electronic health record they will be using for this program.

### **Cancer Screening Services:**

In order to develop a full-service cancer screening program for cervical, breast, colon, and lung cancers, it is necessary to establish clinical laboratory, pathology services, endoscopy services, and radiology services including computed tomography (CT) scanning. The physician lead, who is a general practitioner trained to perform Pap smear, started providing cervical cancer screening services (Pap smear) on August 15, 2018. The Pap smear samples will be sent to the pathology laboratory at BP Koirala Institute of Health Sciences (BPKIHS) in Dharan, Nepal, until a pathology lab in Ramgopalpur is developed. BTF and BCT plan to form an academic relationship with that institute for this service as well as for the treatment of patients with abnormal Pap smear results until the surgery and other departments at the Binaytara Foundation Cancer Center are developed. The patients' care will be coordinated with the team at BPKIHS, and once the procedures or initial treatment are complete, the patient will be sent to Ramgopalpur for follow-up management.

Dr. Rakesh Sah, a gastric surgeon and the president of the Binaytara Cancer Trust, will train the lead physician to perform colonoscopy. Once trained, the lead physician will perform colonoscopy for colon cancer screening. The trained radiology technician will perform mammography and CT scanning. BTF and BCT will contract with an outside radiologist to read the imaging. The lab tests will be performed by our trained lab technician and the results will be read by a contracted pathologist.

## **Laboratory and Pathology services development:**

Clinical laboratory and pathology services are key components of the preventive oncology program as there currently is no full-scale laboratory (lab) and pathology service in the area. The lab is being developed with the assistance of Dr. Kiran Chaturvedi, a pathologist in Washington state with 22 years of experience, Dr. Bindu Adhikari, a pathology resident in Nepal, along with the Binaytara Foundation Cancer Center Advisory Committee. The clinical laboratory and pathology units will be completed by March 2019. This will establish processes for histopathology (the study of changes in tissue caused by disease), cytopathology (the study and diagnosis of disease at a cellular level), biochemistry, and hematology (the study of blood diseases). Lab development will continue concurrently as equipment is purchased, staff is hired and trained.

We will purchase the following lab equipment for this program. The cost of each laboratory equipment is attached as appendix A:

- Automated tissue processor - to process tissues for analysis
- Automated Microtome - to cut tissues in extremely thin slices for analysis
- Cytocentrifuge machine - to prepare tissues for certain kinds of protein and marker analysis
- Automated hematology analyzer - for hematologic tests such as cell counts
- Automated immunohistochemistry (IHC) stainer - to prepare tissues for immunohistochemistry analysis
- Fluorescence Microscope - for Immunofluorescence studies
- Semi-automated Biochemistry analyzer - for biochemical tests
- Centrifuge - to prepare blood specimen for analysis
- Autoclave - to sterilize equipment and linen used in procedures
- Lab refrigerator - to store specimen until they are used

## **Development of Radiology and Endoscopy Services:**

The radiology unit requires the purchase of expensive diagnostic equipment. This equipment includes a digital mammography machine and ultrasound to screen for breast cancer, a digital X-ray and Computed Tomography (CT) scan for lung cancer screening, and video-endoscopy system for colon cancer screening. Once the equipment is purchased and the staff is trained to handle the equipment, the radiology services will start by June 2019. We will utilize the open source Picture Archiving and Communications System (PACS) for radiology images storage and sharing until this functionality is added to our electronic health record system, BTFCConnect.

## **Cancer Education and Awareness Need Assessment:**

The cancer education, awareness and tobacco cessation program will begin with a needs assessment and culminate in cancer education services. The needs assessment will identify prevalent risk factors for cancer, cancer knowledge, attitudes towards cancer, practices related to cancer, and the effective ways to address the needs for education and support. Dr. Aju Mathew, a BTF volunteer and an oncologist who recently moved to India after working as an associate professor of oncology at the University of Kentucky for several years, will be leading this phase of the program. Dr. Mathew, in consultation with the

preventive oncology staff and other volunteers with expertise in oncology and cancer education, will develop and implement the need assessment tools. During this phase, we will focus on reaching out to community members through partnership with local schools, community organizations, businesses, places of worship, and youth clubs. Our goal is to complete the needs assessment by December 2018. Once the need assessment is complete, appropriate cancer education and awareness tools will be developed and implemented by Dr. Mathew and his team.

## **Smoking and Tobacco Cessation Program:**

The health burden of smoking and tobacco consumption is well documented. In order to reduce the risk of lung cancer and other complications of tobacco consumption, we will implement a comprehensive program that combines anti-tobacco education in local languages with medical support for those who wish to quit. The average age for initiation of daily smoking in Nepali men is 18 years. Most youths use modern technology such as the internet, social media, and email to seek information or to communicate with each other, the older generation is still not technology friendly. The education and outreach campaign must be tailored to each group for the program to be effective.

The anti-tobacco education campaign will be tailored to target the three primary groups that may benefit most from this program. These groups are youths under the age of 18 who may or may not have started smoking, individuals between the ages of 18 and older who don't smoke but have at least one family or friend who smokes, and adults who smoke. To reach this broader group of population and to make the most impact, we will be partnering with local schools, businesses, and various community organizations and will organize various events and awareness programs.

Studies suggest that even though about 70% of smokers wish to quit, less than 5% are successful in quitting permanently. However, experts argue that a simple advice from a healthcare professional can double that rate <sup>11</sup>. Behavioral strategies combined with medications have shown a success rate of up to 30% <sup>11</sup>. Our anti-tobacco program will offer both behavioral strategies and medical support to those who wish to quit. These programs are most successful when there is a regular follow up. The preventive oncology team will be using the Binaytara Foundation's electronic health record *BTFConnet* to incorporate follow ups and continued support in order to achieve higher success rate.

## **STAFFING & ADMINISTRATION**

This project is a collaborative effort of the Binaytara Foundation (applicant organization), the city of Ramgopalpur, Nepal (local government), and the Binaytara Cancer Trust (the Binaytara Foundation's sister organization in Nepal). These organizations will combine resources for this project with the BTF taking responsibility for training of healthcare providers, development of infrastructure and equipment, development of processes, and quality control. The city of Ramgopalpur and the Binaytara Cancer Trust will facilitate local activities such as compliance with government regulations, employing or contracting with required staff for the program, and land acquisition for the permanent building.

The program will be managed by a seven-member governing council that consists of three representatives from the Binaytara Foundation, two representatives from the City of Ramgopalpur, and two

representatives from the Binaytara Cancer Trust. The profile of current governing council members includes four physicians, one registered nurse, and two elected officials of the city of Ramgopalpur.

In addition to a team of eight full-time paid staff in Ramgopalpur, a number of cancer experts, health educators, and other healthcare providers in the United States as well as in Nepal have committed to volunteer for this cancer prevention and early detection program and will be traveling to the site to provide training and healthcare services. These people make up the Binaytara Foundation Cancer Center Advisory Committee. The Binaytara Foundation staff and volunteers in the United States will also be in managing various aspects of this project.

The project leader for the cancer prevention and early detection program is Dr. Binay Shah, an oncologist and hematologist for PeaceHealth in Washington state, and the co-founder of the Binaytara Foundation. Dr. Shah has authored numerous scientific papers with his clinical research focusing on health services and outcomes. Dr. Shah is the physician lead for the North Puget Cancer Center and is the chairman of the Cancer Committee there. Dr. Shah will volunteer his time for this project. He will be supported by other volunteer oncologists on the Advisory Committee such as Dr. Julie Gralow, Dr. Aju Mathew and many other physicians and oncology nurses to provide the required clinical expertise and quality control for this project.

A brief introduction of the volunteers currently involved in this program and their roles and responsibilities is listed below. More volunteers will be recruited as the program evolves:

- **Rakesh Kumar Sah, MD** – Dr. Sah is a consultant hepato-pancreatico-biliary and gastric surgery at Grande International Hospital in Kathmandu, Nepal. He will manage operations in Ramgopalpur, including supporting hiring, training, and establishing laboratory and radiology services. Dr. Sah will also assist with various screening services including colonoscopy.
- **Tina Hoxie, RN, BSN, OCN, ONN-CG** – Hoxie has been an oncology nurse for 20 years, having worked with both pediatric and adult patients. She is currently a nurse navigator at Peace Health United General in Sedro-Woolley, Wash, where she helps guide patients through each aspect of their cancer care journey. She will help develop educational materials for cancer education and outreach program.
- **Kiran Chaturvedi, MD** -- Dr. Chaturvedi is board-certified in anatomic and clinical pathology, and hematopathology. She earned her medical degree from King George's Medical College in India, and completed her residency at the University of Kentucky. Dr. Chaturvedi will assist the development of clinical laboratory and pathology services for the cancer prevention and early detection program.
- **Aju Mathew, MD** -- Dr. Mathew is an assistant professor in medical oncology and an attending physician at the University of Kentucky Markey Cancer Center. He is also the co-director of the hematology and medical oncology fellowship program. Dr. Mathew's research focuses on global oncology, breast and gastrointestinal malignancies. He is involved in the development and implementation of cancer education and awareness need assessment tools for this program.
- **Dr. Gopendra Deo, MD** – Dr. Deo is an anesthesiologist and the Vice Principal of Chitwan Medical College in Nepal's Province No. 1. He will help facilitate free training to the Binaytara Foundation Cancer Center preventive oncology staff such as laboratory and radiology technicians at the teaching hospital where he is the Vice Principal.

We have hired Dr. Sanjay Gupta, a general practitioner, to lead the Preventive Oncology program locally. Two registered nurses, a lab technician, a radiology technician, an office assistant, and a janitor will be hired by November 15, 2018. The physician and his team will work with our pool of volunteers and the local partners to carry out the program activities outlined above. Mr. Muskan Thapa, the Binaytara Foundation's technology lead along with Dr. Bipul Luitel, chief technology officer, will be involved in supporting the technological need of this program. Dr. Luitel is a volunteer, whereas, Mr. Thapa is a full-time contractor who will spend 50% of his time in this project.

In addition to the full-time staff and contractors hired for this program, we will contract with a radiologist and a pathologist to interpret radiologic imaging and lab reports. These physicians will be board certified by the local authority in their fields. We anticipate requiring about 0.2 full-time equivalent time from both specialists during the first year. Accounting and payroll for this program will also be outsourced to an independent accounting firm certified by the local authorities.

## **EVALUATION**

We will measure the effectiveness of this program by answering two major questions:

1. Were the programs and services established as planned? and
2. Did the program provide education, screening, and early detection services to the targeted number of people within the specified time frame?

Since the region currently doesn't have the facilities and manpower required to provide cancer prevention and early detection services, the establishment of these services is our first goal and one of the most important measures of success. Alongside establishment of the services comes the actual provision of the service. With the help of the electronic health record, BTFCConnect, we will be able to track the number of patients served, the types of services provided and the prevalence of various cancers in this community.

We recognize that a regular communication among the collaborators and a clear understanding of each partner's roles and responsibilities will be critical for the success of this program. We will implement an ongoing feedback mechanism to monitor the progress and to identify the most effective strategies to work with each other and to meet the aggressive deadlines. The governing council (consisting of representatives from all three collaborating organizations) will meet via video-conference every two weeks to discuss program progress, opportunities for improvement, and the ways to overcome identified obstacles. These meeting reports will provide insights into each milestone.

## **SUSTAINABILITY**

The cancer prevention and early detection program will build capacity for development of the comprehensive cancer center and achieve sustainability partly through the revenue generation from program services and maintaining lean and efficient organizational structure, and partly through multi-year grant support and continued fundraising. The program service fees will be affordable for most middle-income people in the province; and we expect about 75% of the funding for the ongoing program expenses to come from this source within two years. We will partner with grant makers, businesses, and supporters to generate funding that will cover the costs of providing care to those who can't afford the nominal service fees.

- This project will be supported through the Binaytara Foundation's operating funds, grants from governments, foundations, and organizations. We will apply for support to USAID, Bill and Melinda Gates Foundation, Ford Foundation, Prevent Cancer Foundation, the Center for Disease Control and Prevention, and pharmaceutical companies.
- Several local physicians in Nepal and those in the US have expressed interest in volunteering on site to support this program and pay their own travel expense. We anticipate receiving continued in-kind and volunteer support from experts who will provide patient care as well as help with the training of manpower to expand the program.
- The City of Ramgopalpur has provided land for the infrastructure development for the cancer center and has committed to provide partial funding for the cancer prevention and early detection program. The expenses covered by the City include utilities, furniture purchase for this program, and small medical equipment such as blood pressure machine, stethoscope, and other examination tools.

## **ABOUT US**

### **HISTORY**

The Binaytara Foundation is a 501(c)3 nonprofit established in October 2007 with the goal of bringing positive changes to people's lives by promoting health and education. As individuals who were born and raised in Nepal and edified by the education and work experience both in Nepal and in the United States, co-founders Dr. Binay Shah and Tara Shah envision a world where every human being has access to cutting-edge, evidence-based, and culturally appropriate healthcare services.

### **MISSION**

The Binaytara Foundation aims to improve healthcare in resource poor communities and improve cancer care worldwide by collaborating with other organizations, individuals, and governments to develop programs and services that improve access to care.

### **Accomplishments**

We achieve our mission by collaborating and partnering with individuals, non-profits, governments, corporations, foundations, and other supporters. Our projects and activities to improve healthcare in the US and abroad can be summed up in three words: Advocacy, Education, and Innovation. By staying lean and through strategic partnership with other organizations and individuals, we developed and supported 11 unique programs in the last five years with a budget of less than \$650,000. These programs contributed to improving healthcare for thousands of people in the US, Nepal, and India.

The Binaytara Foundation follows a pyramid model for its healthcare projects in developing countries. At the top of the pyramid are the healthcare institutions and healthcare providers who we support, train, and build infrastructures for. With the new trainings, programs, and infrastructure in place, these institutions

and individuals will provide care to the patients who are at the bottom of the pyramid. In the United States, our approach has been education and advocacy to improve cancer care.

Through its cancer patient education program, healthcare provider education conference, and the summit on cancer health disparities, the Binaytara Foundation is working on improving cancer care in the United States. We recently hosted our sixth annual hematology and oncology conference in Idaho that was attended by 140 participants. Similarly, the northwest cancer summit is a recurring free program designed to educate cancer patients and their families about various aspects of managing cancer. Through this program we provided cancer education to 175 participants in Whatcom and Skagit counties since February 2017.

The first Summit on Cancer Health Disparities hosted by the Binaytara Foundation in April 2018 brought together over 150 delegates including cancer experts, healthcare providers, healthcare executives, pharmaceutical executives, health economists, lawmakers, and patient advocates under one roof to discuss and debate issues related to access to cancer care.

Some of our most impactful international projects include establishment of a Bone Marrow Transplant (BMT) Center in Nepal through our partnership with a government hospital in Nepal and the University of Illinois at Chicago. This center is the only BMT center in the country and provides BMT services at a fraction of the costs of BMT services in the United States.

Our partnership with the government of Madhya Pradesh in India has brought hospice and palliative care services to the 72 million people of this state. We started this project in mid 2017 as a pilot program in Ujjain District of Madhya Pradesh and since then the program has expanded to other states and approximately 1000 terminally-ill patients and their families have already received hospice and palliative care services through this program.

To bridge the gap in care delivery in developing countries, we developed an electronic health record system customized to the health systems of low-income counties where preventive services are minimally available, patients are often lost in follow ups, healthcare expenses are primarily paid out of pocket, and health literacy among people is poor. This electronic health system provides a low-cost solution to managing chronic illnesses.

## **STAFF**

The Binaytara Foundation stays lean and efficient with small number of paid staff members. Along with its paid staff, its projects are supported by its board members and dozens of volunteers.

**Tara Shah, Executive Director** – Shah is a co-founder of the Binaytara Foundation. Tara's duties include, developing and implementing strategic plans to meet the needs of the foundation in partnership with the board of directors. Tara volunteers 40-hours a week in the Binaytara Foundation activities. She will spend 30% of her time in this project.

**Dr. Binay Shah, President** – Dr. Shah is the co-founder of the Binaytara Foundation. His duties include program development and developing positive relationships with key stakeholders and partners. Dr. Shah volunteers about 30 hours per week in the Binaytara Foundation activities. He will spend 50% of his time in this project.

**Dr. Bipul Luitel, Chief Technology Officer** - Dr. Luitel has volunteered for the Binaytara Foundation since 2007 helping with all technological needs of the organization. He currently guides the technology lead in maintaining the electronic health record system and ensuring proper functioning of the Binaytara Foundation's websites, electronic health record, and other technology. Bipul spends 5-10 hours per week in the Binaytara Foundation activities.

**Muskan Thapa, Technology lead** - Mr. Thapa is located in Nepal and remotely supports the Binaytara Foundation's technology needs. He is a full-time paid contractor who will spend 40% of his time in the cancer prevention and early detection project updating and maintaining the electronic health records, supporting other technology needs of the program and staff training.

**Aaron Weinberg, Development Director** – Aaron's duties include supporting the foundation's projects through fund development, public relations, and marketing. He earned a Bachelor of Arts degree in journalism in 2008 from Western Washington University. Aaron is a full-time paid staff and will spend 50% of his time in fund development activities for this project during the first year.

**Alexandra Packard, Outreach Coordinator** – Alex's duties include developing and implementing effective strategies to form partnerships with community members, organizations, businesses, donors, sponsors, and other supporters, and by supporting the organization's other funding and branding efforts. She earned a Bachelor of Science degree in 2016 from Boise State University. Alex is a full-time paid staff.

**Jessie Dark, Executive Assistant** - Jessie supports the Binaytara Foundation's projects as a project assistant and is involved in volunteer recruitment, communicating with volunteers and on-site personnel, managing logistics for volunteers from the US traveling to site for training and clinical support, report writing and record keeping as well as communicating with partners and supporters.

## **BOARD**

The Binaytara Foundation Board of Directors are highly accomplished and deeply passionate individuals eager to make a difference in others' lives. Four of the board members are physicians having expertise in oncology, emergency medicine, and palliative care, the fifth board member is a registered nurse with varied clinical experience, and an entrepreneur with retail and real-estate business experience. The Board consists of President, Secretary, Treasurer, and two Directors.

Each board member makes financial contributions as well as time contribution to the Binaytara Foundation's projects. Dr. Derrel Walker, one of the board members and a palliative care physician, was crucial in the training of physicians and nurses from Madhya Pradesh, India for our hospice and palliative care program in that state. All board members play a vital role in planning and organizing the cancer conferences, and the physicians have served as faculty or moderators for these meetings. The board is deeply involved in the planning and implementation of the cancer prevention and early detection program.

## **CONCLUSION**

For the 5.4 million residents of Nepal's Province 2, and several million more from the surrounding areas who currently don't have access to cancer prevention and early detection services, the Binaytara Foundation's cancer prevention and early detection program will create a significant milestone in reducing deaths from preventable cancers and minimizing physical, psychological, and financial suffering associated with delayed diagnosis of cancer.

The project is developed in partnership with the local government and in consultations with various experts in cancer care, and it is designed to address the unique socio-cultural, economic, and lifestyle factors that affect the health of the residents of this province. In addition to providing cancer prevention and early detection services to the 5.4 million residents of province 2, this program will develop capacity for the development of the comprehensive cancer center and will support the sustainability goal of this project.

# BUDGET

## INCOME

<i>Grants &amp; Contributions</i>	
Corporate Donations	45000
Foundation Donors	76000
Individual Fundraising Campaigns	24962
Program service Revenue	75000
In-kind contributions	25609
Request to America Nepal Medical Foundation	25000

<b>TOTAL INCOME</b>	<b>271571</b>
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## EXPENSES

### *Personnel*

#### *Salaries and Wages*

Project Assistant (@25%)	11333
Lead Physician (full-time) X 1	55250
Nursing Staff (full-time) X 3	12000
Laboratory Technician (full-time) X 1	3200
Radiology Tencician (full-time) X 1	3200
Receptionist/Front Desk Staff (full-time) X 1	2550
Janitor (full-time) X 1	2295
<b>Total Salaries and Wages</b>	<b>89828</b>

Benefits @ 20%	11774
Payroll taxes (1) @ 8.5%	963

<b>Total Personnel</b>	<b>102565</b>
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### *Non-Personnel*

#### *Professional Fees*

Technology lead @ 50%	4250
Radiologist @ 10%	6600
Pathologist @ 10%	5200
<b>Total Professional Fees</b>	<b>16050</b>

*Other Direct Costs*

Computers & printers	3000
Office Furniture	3000
Telephone, internet and Utilities	5100
Rent	8000
Bio-Waste Disposal	1275
Appointment scheduling and payment processing system	2363
EHR hosting and maintenance	1700
Large screening and diagnostic equipment purchase	82330
Medical & Diagnostic Supplies	6800
Office Supplies	1700
Travel & training	10000
Preventive oncology conference	3000
<b><i>Sub-total Non-Personnel</i></b>	<b><i>144318</i></b>
<b>Sub-total Direct Costs</b>	<b>246883</b>
<i>Indirect costs</i>	<i>24688</i>
<b>TOTAL BUDGET</b>	<b>271571</b>

## BUDGET NARRATIVE

The Binaytara Foundation's request to the America Nepal Medical Foundation is \$25,000 per year for three years to support this program. The total budget for the cancer prevention and early detection program in Ramgopalpur, Nepal, is \$271,571. We have generated \$24,962 in donations and pledges from individual donors for this project and secured \$2,323 in-kind services. The Binaytara Foundation will contribute \$ 23,246 from its operating funds for this project. We will be applying for support from the prevent cancer foundation, the center for disease control, the USAID, and other charitable foundations and anticipate receiving a total of \$76,000 in foundation grants. We also anticipate receiving \$45,000 in corporate donations from Amgen, Bayer, Pfizer, and other pharmaceuticals for this program. The program is expected to generate \$75,000 in program service revenue over the 17- month period.

### Personnel Expense

The total personnel cost for this project is \$ 102,565 for the 17-month period and includes salary and benefits for 9 employees.

**Project Assistant**(25%) will support various aspects of the project from our headquarter in Bellingham by assisting in volunteer recruitment, communicating with volunteers and on-site personnel, managing logistics for volunteers from the US traveling to site for training and clinical support, report writing and record keeping as well as communicating with partners and supporters on behalf of the project director who will volunteer his time for this project. The project assistant is a salaried employee with an annual salary of \$31,000. Project assistant salary will be paid with the Binaytara Foundation's annual operating funds.

**Lead Physician** will staff the clinic full-time and provide direct care to patients. The annual salary of the lead physician is \$39,000.

**Three full-time registered nurses** each receiving an annual salary of \$4,000. The nurses will support the lead physician with procedures, patient education, and community outreach. The total salary for nurses reflects the cost for 16 months starting the second month of the project.

**A full-time laboratory technician** will be hired on the second month to provide laboratory services. The annual salary will be \$2400; the total salary for this position reflects a 16-month cost.

**A full-time radiology technician** will also be hired on the second month to provide radiology services. The annual salary of the radiology technician will be \$2400; the total salary for this position reflects a 16-month cost.

**Receptionist** is needed to schedule appointments, answer calls, and provide support to the staff. The receptionist will be paid \$1800 annually. The total salary reflects a 17- month cost.

**A full time Janitor** is hired at an annual salary of \$1620. The total cost is for a 17-month period.

The **benefits** provided to the employees in Ramgopalpur include medical benefits, continuing education, life insurance, contributions to employee provident funds, paid time off, and housing (lead physician only). The project assistant is not provided any benefit other than a 3-week paid time off annually. The **payroll tax** at 8.5% is for the US employee only. Employers are not required to make employment tax contributions in Nepal.

### Non-Personnel Expense

#### *Professional Fees*

The **technology lead** is a full-time contractor of the Binaytara Foundation and will spend 50% of his time in this project. Annual salary of the technology lead is \$6000. The cost is for a 17-month period. Technology lead will be paid with the Binaytara Foundation annual operating funds.

A contracted **radiologist** will provide radiology services requiring 10% of Full-Time Equivalent for this project. Annual salary of a full-time radiologist in Nepal is \$46,590.

A **pathologist** will be contracted to provide pathology services at 10% of Full-Time Equivalent for this project. The annual salary of a full-time pathologist in Nepal is \$39,000.

### **Other Direct Costs**

We will purchase 3 computers (\$800 each) and 2 printers (\$300 each) for the program. Office furniture including six patient exam tables will cost \$3,000 and the rent payments are \$470/month for this project. Other direct expenses include utilities (estimated at \$375 per month including the cost of bio-medical waste disposal) and office supplies at \$100/month. The costs of hosting the electronic health record system (\$100/month) will be paid from the Binaytara Foundation annual operating funds. We have received monthly in-kind donation of \$139/per month for the online patient scheduling, check-in, and payment processing system.

The purchase of *large medical and diagnostic equipment* includes lab and radiology equipment such as CT Scan, Mammogram, X-ray, ultrasound, tissue processor, immunohistochemistry machine etc. The equipment cost a total of \$823,300. Ten percent of the cost of these equipment (\$82,330) is allocated to the cancer prevention and early detection project. The remaining funds for equipment purchase will be generated through grants, individual donations, and crowdfunding for the cancer center.

The average cost of *medical and diagnostic supplies* such as pap-smear kit, gloves, sterilization solutions, gauze and cotton swabs, small equipment such as forceps, speculum, surgical blades, needles, scissors, saline etc. is estimated at \$400 a month.

The cost of *travel and training* includes the airfare and lodging for the laboratory and radiology technicians to travel to other centers in Nepal and India for 4-week trainings (\$2500 each person X 2 technicians), and the cost of a US physician traveling to Ramgopalpur to train the physician and nurses for two weeks (cost \$5,000). The cost of travel for the US physician will be covered with the Binaytara Foundation operating funds.

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