



## ***BRING LIFE-SAVING X-RAY SERVICES TO RURAL NEPAL***

**THE PROBLEM** The healthcare infrastructure of the Achham district in western Nepal has been ravaged by a decade-long civil conflict and poverty. We at Nyaya Health have begun to address this lack by operating a primary health clinic that provides preventive and prenatal medicine, delivery services, and follow-up care to over 60 patients a day. Our physician—only the second physician in a district of 250,000 people—leads an all-Nepali team to provide essential services to patients who had previously never received formal medical care.

Our clinical experiences in Achham have shown that X-Ray services are the critical next step for improving healthcare infrastructure. In a district suffering from the highest HIV rates in Nepal, X-Ray is crucial for evaluating tuberculosis. Childhood and adult pneumonias are major killers in our region, and can be easily treated with timely X-Ray diagnosis and antibiotic treatment. Fractures from farming and vehicular accidents lead to permanent disability owing to the lack of X-Ray diagnostics.

In our efforts to improve health outcomes in this region, we are **working with the World Health Imaging Alliance to deploy a digital WHIS-RAD X-ray system** to our clinic. This system, specifically developed for rural, poor settings such as ours, will provide immediate impact to our patients and to public health.

**OUR PARTNER** Nyaya Health is collaborating with the World Health Imaging Alliance (WHIA) to finance and deploy an x-ray system to our clinic in rural Nepal. WHIA is a not-for-profit organization, created in collaboration between Northwestern University and the University of Cape Town with a mission to improve the health status and quality of life for people in underserved communities such as rural Nepal by providing primary care diagnostic imaging services.

**THE PRODUCT** The World Health Imaging System for Radiography (WHIS-RAD) is a cost-effective, safe, reliable, and simple X-ray system perfectly suited for our rural clinic primary health care center. WHIS-RAD lowers equipment costs and provides a safe, reliable, simple X-ray system that enables high quality images to be produced by health care professionals with limited imaging experience. As a digital system, it eliminates the need for chemical processing of images, which confers large long-term environmental and economic benefits. Additionally, the machine will enable us to rapidly add teleradiology consultations for the purposes of performance monitoring, training, and expansion of diagnostic capacity.

**THE PLAN** With the system, our clinical team can address critical clinical questions; chest, abdominal, and skeletal X-ray are critical diagnostic modalities for the generalist rural setting. X-Ray is an appropriate technology to guide diagnosis, treatment, and referral. The primary uses of the X-Ray will consist of:

1. Evaluating childhood and adult pneumonia
2. Assessing traumatic long-bone fractures
3. Diagnosis of tuberculosis

Each of these applications will be effectively integrated within our primary care programs by our generalist healthcare staff. Effectively applying X-Ray in the evaluation of respiratory tract infections will help to prescribe antibiotics in a safe and rational manner and to triage sick patients for referral. X-Ray for tuberculosis will be essential owing to the lack of services in the area and the acute need. Traumatic bone fractures are exceedingly common considering the geographic terrain and high incidences of fall injuries, and X-Ray is the limiting factor in providing effective treatment.

Utilizing Nyaya Health's innovative [telemedicine center](#) constructed by the Open Architecture Network, we will work with radiologists based in Kathmandu and in the United States for training and performance improvement.

This necessary clinical information can be provided by our team, with the training and supervision of the WHIA and multiple in-country experts. Our plan is to raise the funds that are needed to (1) finance the digital WHIS-RAD system, (2) transport the WHIS-RAD system to our clinic in Achham, (3) hire a local expert radiologic technician to oversee the daily use of the X-ray system, and (4) purchase the maintenance contracts to ensure that this program is sustainable and effective. [Our full proposal](#) is available online ([www.nyayahealth.org](http://www.nyayahealth.org)).

**WHAT YOU CAN DO** We have **achieved \$15,000** of the total **\$67,000** needed for our X-ray program. You can help make this project a reality by raising the final **\$52,000 needed**.

**DONATE NOW:** [www.nyayahealth.org](http://www.nyayahealth.org)

**Because Nyaya is volunteer-run, 100% of funds go to program services.**



#### **ABOUT NYAYA HEALTH**

Nyaya Health is a 501(c)(3) nonprofit organization working to improve the health of poor communities in Nepal through the provision of medical and public health services. Our organization is a unique assembly of Nepal- and USA-based public health experts and healthcare providers who use our collective expertise to develop long-term, system-level improvements in healthcare delivery in impoverished areas. Through the innovative application of epidemiological methodologies, information and communication technologies, and accountable community-based management structures, we seek to develop scalable models for expanding health equity and access to marginalized populations.

#### **WHERE WE WORK**

Achham is one of the poorest districts in Nepal and has been severely affected by war and poverty. It is home to 250,000 people who are served by only one doctor. The district suffers from some of the highest maternal and child mortality rates in South Asia. The annual per capita income is \$150, and many people migrate to India for work. Migration has fueled an HIV epidemic with 8-10% of returning migrants testing positive for HIV.

#### **WHAT WE DO**

The heart of Nyaya Health activities in Achham is a primary healthcare center focusing on maternal and child health, HIV and tuberculosis. The clinic is run by an all-Nepali staff consisting of a physician, a health assistant (comparable to a Physician's Associate), four midwives, a lab technician, a clerk, and a project manager. We are developing a network of community health workers who provide essential outreach and triage services to our geographically dispersed population. These services have been developed in collaboration with the government of Nepal; the long-term goal is full integration with public-sector health programs. Over the next year, with support from Advanced Micro Devices and the Open Architecture Network, we are developing a community telemedicine center to apply information and communication technologies in innovative ways to improve the effectiveness and equity of our health services. In the long-term, we are renovating, stocking and staffing a hospital that was abandoned 25 years ago to expand our medical, obstetric, and surgical capacity.



**Nyaya Health midwife performing intake**



## OUR APPROACH

We have adopted a comprehensive, community-based strategy to rapidly and effectively expanding health services. Four primary objectives guide our on-the-ground approach to clinical and public health practice:

### *Facilitating resource distribution to resource-denied areas.*

We utilize our expanding grassroots social network that is procuring finances and equipment to develop models for resource re-distribution to one of the most impoverished areas of Nepal. This work provides a necessary injection of critical resources for local communities to provide services, maintain and expand training programs, and begin to believe in their right to excellent health and their ability to achieve it. Expatriate staff members provide technical expertise, training and assistance in clinic oversight, but do not receive any financial compensation.

### *Fostering grassroots collective action to improve local ownership over healthcare.*

The local community members and district health officials have been advocating for the expansion of the very popular Nyaya Health services. Local community members will take ownership over the health services through the expansion of our existing local management structures. We will continue to employ a diverse all-Nepali staff from all socioeconomic and caste backgrounds.

### *Involving the central government in pro-poor health infrastructure.*

The District Health Office of Achham, operating under the Ministry of Health, is providing essential medicines for maternal and child health, HIV, and tuberculosis. We believe that the government is ultimately responsible for providing healthcare to its citizens. The government has agreed to provide us with an abandoned hospital and assist with renovations, and we are developing a program to translate long-term responsibility and services into the larger community health system of Nepal.

### *Achieving transparency and collaboration in global health delivery.*

As an open-source organization, we continue to make available all of our planning documents, costing tools, and clinical protocols online for free download to the public through our wiki ([nyayahealth.pbwiki.com](http://nyayahealth.pbwiki.com)).



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