Partners International Foundation
Vaccine Project
December, 2004
Final Report and Proposal

This is a summary of rationale' and events involved in our 2004 vaccine procurement and transport program.

Problem

There is an acute and chronic shortage of Tuberculosis (BCG) vaccine in Nepal. Availability and price of the vaccine are not an issue, as Nepal's neighbor India combines with Indonesia to produce roughly 58% of the world's supply of BCG. The difficulty arises in the transport of the vaccine. BCG must be maintained, in its powdered form, at a temperature range between 2 and 8 degrees Celsius. For BCG to arrive in Nepal in a useful form, it must arrive by air, in a cold-maintaining transport box, and be delivered immediately to a refrigeration facility. This is an expensive and exacting process that is not among the duties of health officials in either Nepal or India.

Unaccompanied, donated shipments of BCG often will sit without refrigeration in the customs section of Kathmandu's Tribhuvan airport, if they arrive during a weekend or one of Nepal's many festivals. Also, many shipments have spoiled due to miscommunication between shipper and recipient in Nepal.

Migratory groups of Tibetans passing through Nepal on their way to India represent one of the highest tuberculosis risk groups in the world (Roughly 20 cases of active tuberculosis per 1000). Facilities in Nepal that sell BCG vaccine to clinics that immunize Tibetans have begun to cease this procedure due to the vaccine shortage.

Areas in India where migrating Tibetans settle or pass through have some of the highest incidences of active Tuberculosis in India. Theses areas include, Himachal Pradesh, Arunchal Pradesh, Uttar Pradesh and Bihar; all but Himachal Pradesh border Nepal. Not surprisingly, the states that border Nepal also have the highest population density (according to India's 2000 census).

The children of Nepal, as well as high-risk groups like migrating Tibetans, are currently not receiving adequate immunization against tuberculosis. There needs to be an efficient and sustainable method of procuring BCG in India and transporting it to Nepal in order to meet this critical shortfall in Nepal's BCG supply. This method must eventually evolve away from a charitable subsidy and towards utilizing the financial and human resources already present in Nepal's Ministry of Health.

Method/Results

A meeting was conducted with B.R. Dotel of HMG Ministry of Health. We received a letter of cooperation from his office. It was our initial intention to deliver BCG directly to the needy facilities and clinics of Kathmandu, but the endorsement of the Government

was useful in that they would handle BCG shipments to refrigeration facilities throughout Nepal. Also, official correspondence would assist with vaccine procurement and any unforeseen delays in passing through customs.

A consultation meeting was then held with Mr. I. M. Shrestha of the WHO. Mr. Shrestha expressed his concerns about the current state of the BCG supply in Nepal. He was very pleased to hear of our plans. He made the suggestion that we set-up an interim storage refrigerator somewhere in Kathmandu for vaccines arriving from India. This would prevent the spoilage of any vaccines that might arrive after the Ministry of Health had closed for the day. After the meeting, we immediately located and secured a refrigerator for this purpose.

Upon arrival in Delhi, after a one-hour flight, we immediately took a cab to a designated neighborhood in north Delhi and booked a room. We met our contact, a health administrator for the neighborhood clinic. He escorted us to a Serum Institue of India authorized BCG dealer where we paid roughly $100 for 500 doses of BCG. The vaccine was packed in ice and transported to the neighborhood clinic where it was kept in the clinic refrigerator.

We chose this particular neighborhood in north Delhi as a base because it contained an internet café, a Western Union office, a vendor selling large duffel bags for transport, and good travel agents: all the services necessary to our project. Due to heavy flight loads we were not able to leave Delhi for a few days. We took the time to buy a duffel bag and refreeze the ice packs in our cold transport box in a hotel freezer.

After a few days the BCG was packed in the cold box with a cold-chain monitoring thermometer and placed in the large black duffel bag. The vaccine was checked into the airline as baggage and not carried aboard the plane. We proceeded through Indian customs and flew back to Kathmandu.

With flight delays, it was late afternoon before we arrived in Kathmandu. We cleared customs and proceeded to take our vaccine shipment to the pre-determined interim storage refrigerator to await future delivery to the Ministry of Health.

The next morning the delivery was made. B.R. Dotel gave thanks and wondered when he would get another, larger shipment of BCG from us. The cold facility manager stated that there were only 200 vials of BCG in the central facility - and thus all of Nepal - at the time of our delivery. The elusive, and as still unmet, director of the Ministry of Health, Dr. M. K. Chettri, followed up with a letter of thanks a few days later.

Future Plan

The main idea of this program is to manually courier as many vials of BCG as possible, via air, from Delhi to Kathmandu. It is practical for a courier to take a maximum of 2000 doses of BCG in a single duffel bag. All future trips will seek to transport at this level of volume. It is recommended that the courier not exceed this amount due to airline baggage limitations and potential large-scale losses.

A practical plan would be to transport 2000 doses of BCG three times per year. Our plan provides for a single courier to transport at this rate. In the future, we will seek to utilize members of the international diplomatic and foreign aid community who regularly make the short flight from Delhi to Kathmandu as couriers. Western or European air travelers out of Delhi seem to undergo less hardships with baggage than do Indians or Nepalis, and as such, are preferable as couriers. We will, however, attempt to use Nepal and Indian nationals as couriers from time to time as an experiment. Airfare for these two groups is much less expensive.

Some capital expenses are required for the smooth operation of this program. The interim refrigerators at both our Delhi and Kathmandu facilities are borrowed and inadequate for our longer-term storage needs. We will need to purchase one large refrigerator for each location. Also, we need more WHO approved cold-chain monitoring cards. They are manufactured by 3M and can only be purchased in lots of 1,500.

Finally, we must spend considerable time and effort to persuade HMG Ministry of Health to eventually enable this program with their own budget and manpower. We will use our news media and publicity resources in Nepal, as well as personal meetings and training sessions, to enact this change. With regard to the latter, it may be necessary to take a member of the Ministry of Health to Delhi for a courier training trip. We will also actively seek to educate and employ members of the above mentioned diplomatic and foreign aid community in India.

Proposal

We would request potential donors to fund a five-year program of three courier trips per year. At 2000 doses of BCG per trip, the entire program would bring 30,000 doses of BCG to Nepal: twice the most recent (and presently expired) commitment from UNICEF. Also, this rate of purchase and transport does not place an excessive burden on the BCG manufacturing capability of The Serum Institute of India.

Roughly, each courier delivery of 2000 doses would cost $1,000. This includes round trip airfare from Kathmandu, visas, transfers and expenses while in Delhi. As couriers from India are found, this figure could plummet to the simple cost of the vaccines - which is $400 per trip.

For capital expenses, allow for two refrigerators and a box of cold-chain monitors. This one-time total is $1,600.

Expenses for program training for officials in both India and Nepal, as well as one guest flight for a Nepali Health Ministry bureaucrat should not exceed $1,900.

Total cost for this five-year program is roughly $18,500 - or about $0.62 to vaccinate one child against Tuberculosis.

His Majesty's Government
Ministry Of Health
DEPARTMENT OF HEALTH SERVICES
(.....)

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Kathmandu, Nepal.

Ref. No. :

Date : .....

Letter of Thanks

The people of Nepal and H.M.G. Ministry of Health wish to thank Partners International Foundation for the kind donation of 500 doses BCG vaccine.

We have very much shortage of BCG in Nepal. The central cold storage unit inventory of BCG for Nepal was 200 vials at the time of your delivery, making your donation very timely and welcome.

We still need many thousand BCG shots every year to meet the need in Nepal. We look forward to future programs of this type from Partners International Foundation

Best wishes,

Dr. M.K. Chhetri
Director
Logistics Management Division
Department of Health Services
Teku, Kathmandu