Sunday, March 28, 2010

To the President of Mongolia for presentation to The Gates Foundation

Mr. President:

As you already know well, teams of doctors and allied health professionals from Childrens Hospital Los Angeles have been traveling to Mongolia at their own expense for more than a decade to collaborate with our Mongolian colleagues at the Mothers and Childrens Research Hospital (MCH), as well as the University, Medical School and other hospitals in Ulan Baataar and greater Mongolia. We work collaboratively through teaching, demonstration and advocacy to improve child and maternal health for the people of Mongolia.

MCH is really the sole facility in Mongolia to care for the sickest children, the ones with the highest risk for morbidity and mortality. Therefore it’s impact on the mortality rate and general well being of children and teens throughout Mongolia is critical. We think that Investing in providing a modern facility for the MCH is an investment in the health of all children in the country.

The following salient issues are cited as justification for the proposal:
1. Over the last 10 years, the population in Ulaan Baatar has increased twice to 1.2 million, while the number of hospitals and beds has not changed to keep pace. In particular, there is currently a severe outbreak of seasonal flu so that at MCH children are sharing one bed.

2. More than half of the Mongolian population are children and adolescents under 18 or women of child bearing age.

3. MCH buildings are very old and do not meet current standards.

4. In Mongolia, there is no other free standing separate children’s hospital except the children’s wards at MCH. Meanwhile the proportion of the population under 18 years is more than 40%. In each provincial hospital, there are only 25-40 pediatric beds.

Please find attached an executive summary of a draft plan to build a new facility to replace MCH. This architectural planning idea is based upon an extreme climate green solution from Saskatoon, Canada. Please note that cost estimates are approximate, based on local construction codes, labor and material costs in 2005 US dollars.

Mr. President it would be my pleasure to accompany you in person to support your presentation to the Gates Foundation at my own expense.

Yours truly,

David Warburton
Planning proposal for new Mothers and Childrens Hospital Complex
Ulaanbaatar, Mongolia

Executive summary

The need:

Mongolia is demographically a young country with 60% of its 2.75 million population under 25 and 30% under 14 years of age. The birth rate is 22 per 1000 of the population. The fertility rate is 2.3 children per woman. The population growth rate is 1.5%. The population of the capital city Ulaanbaatar is estimated at 1.7 million. Infant mortality rate is currently 30-35 per thousand live births, several times that in fully developed countries.

Thus, the children of Mongolia are the nations’ most precious resource. Improvement in infant mortality must be ranked among the highest national priorities.

“A Nations future is the health of its Children.”

Herein we propose Phase I out of 4 phases of a new hospital complex to be located in Ulaanbaatar. Phase I of this complex will care for sick children. Phase II will care for mothers with high risk pregnancies, Phase III will be upgrading to a higher medical level of care including training and research facilities for doctors and specialists, child health nurses, midwives and health technicians. Phase IV will be a modern diagnostic center and full integration into the existing health system.

The project:

Phase I will comprise 150-200 beds, including 20 ICU beds, 16 m² per bed. Medical gases, suction and adequate electrical outlets will be delivered per two beds. Family centered care units. Note: building costs in Mongolia are less then10% of US costs.

Estimated construction plan: 3200 m² at $300 per m²: cost $1 million
Offices and administration: 2000 m² at $200 per m²: cost $400,000
6 OR’s with expansion for another 4: 600 m² at $500 per m²: cost $300,000
Technical plant support facilities 1500 m² at $400 per m²: cost $600,000
Out patient clinics 20 cubicles & support 1000 m² at $250 per m²: cost $250,000
Diagnostic facilities: laboratory, X-ray, etc. 1000 m² at $500 per m²: cost $500,000
Conference and training facilities: 1000 m² at $250 per m²: cost $250,000
Cafeteria, kitchen, and laundry 1500 m² at $250 per m²: cost $375,000
Central supply and sterilization 500 m² at $200 per m²: cost $100,000
ER and ambulance bay 500 m² at $250 per m²: cost $125,000

IT wiring infrastructure included but not terminals.
Design notes: Green sustainable building, culturally appropriate i.e. Mongolian friendly, south facing 220° wall with convex glass surfaces. On-site water well and purification plant. Back up power and solar panels integrated.

Site infrastructure: There is no concrete plant in UB so we need to plan for an on site concrete plant. Cost $500,000

Phase I Total estimated construction cost: $6 million.

Phase I Cost of fitting out estimated: $6 million. This cost takes into account significant expected equipment donations.

This is a highly cost efficient strategy to improve the healthcare outcomes for Mongolian children, hence ensuring the future of the Mongolian people as a democratic nation.

Phase I preliminary estimated cost of construction: $6 million
Phase I preliminary estimated fitting out costs: $6 million

Phase II preliminary estimated construction cost: $4 million
Phase II preliminary estimated fitting out costs: $4 million

Phase III preliminary estimated construction cost: $4 million
Phase III preliminary estimated fitting out cost: $3 million

Phase IV preliminary estimated construction cost: $1 million
Phase IV preliminary estimate fitting out cost: $3 million

Estimated cost of completion:

Phase I: $12 million  Phase II: $ 8 million
Phase III: $ 7 million  Phase IV: $ 4 million

Total project cost completion Phase 1- 4: $31 million

Endowment for operations and maintenance: $19 million

Total project cost: $50 million

Time line:


Planning and logistics notes:

On site concrete plant with 100 m$^3$/h capacity will be needed to insure quality control, strength and correctly pour the projected volume of concrete. Since most of the building materials are not available in Mongolia, we have to ship from Europe, China and North America. Also donated materials from other Hospitals and producers have to be shipped in containers and brought into Mongolia via rail. To secure containers we have to consider container trans-shipment link between railroad and site or set up flatbed transport from rail-terminal to site.

Poverty reduction:

Employment of local Mongolian work force will cost 25% more than guest workers. However we have included this cost factor in our calculations and this will be important to contribute to local poverty reduction.

Self-sustaining:

Currently > $45 million per annum are spent by 35,000 Mongolians on diagnostic and treatment services in foreign countries. The existence of this modern diagnostic center and Hospital in Ulaanbaatar will strongly decrease the incentive to export these resources. The educational component will provide a continuing source of trained experts in child health for the entire country. The Endowment for operations and maintenance will help to permanently sustain improvements in child health outcomes.

Principal:

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California-Mongolia Medical Project
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Figure 1. One of the suggested sites of the new Ulaanbaatar Mothers and Childrens Hospital complex, located SW of the city of Ulaanbaatar.

Figure 2. Example of suitable hospital construction: 320 bed facility in Saskatoon, Canada. This design solves many of the same climate, location and population size issues we face in Ulaanbaatar ( -40 to +40 Celsius extreme temperatures, sustainable design, southern 220° exposure, urban/rural setting ).
Figure 3. Architect’s model of the Sasakatoon complex, showing modular phase design, green orientation to sunlight with centrally located facilities building allowing incremental additions of phased construction. Courtesy of the architect: Bob Billington, RPG, Vancouver.
Figure 4. Three options were to build, marked as red squares NW, E and SW of Ulaanbaatar.

Figure 5. South side of Saskatoon City Hospital.
References:

Numerous in depth interviews with:

Thom Arnold, M.D.
Don Axon, FAIA, Architect
Darren Berman, M.D.
Bob Billington, MAIBC, AIA, ACHA, Architect
Ken Geller, M.D. ENT Surgeon, CHLA
Bob Hollowell, Director Facility Operations, CHLA
Clark Inderlied, Ph.D. Director of Pathology and Laboratory Medicine, CHLA
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Bill Mason, M.D. Head Infectious Diseases, CHLA
Marvin Nelson, M.D. Chief of Radiology, CHLA
Bill Noce, CEO, CHLA
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David Warburton, D.Sc., M.D., FRCP, Professor of Pediatrics, CHLA

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