Proposal for the National Oral Health Survey in Cambodia

Executive Summary

According to the World Health Organisation (WHO), oral diseases are important public health problems in developing countries. The WHO 2003 report indicates that oral diseases not only have a significant impact on individuals but also are a major burden to communities, especially those with scarce resources to address their prevention and control (WHO report 2003). Dental caries and periodontal diseases are the most prevalence oral diseases at the global level and those causing the major burden to individuals and society, especially in developing countries. The oral health status in many developing countries is poor. The majority of these population have very little knowledge about oral health and poor access to preventive and curative care, have thus they have high levels of unmet needs and untreated oral diseases. Additionally, they may have negative attitudes towards oral health.

Cambodia is one such developing country. The oral health personnel were inadequate compared with the size of the population and their oral health needs. Although this situation has improved in recent years, access to oral health care and preventive programs is still very limited. A National Oral Health Survey in Cambodia was conducted in 1990-91 for the primary purpose of collecting information on the oral health status of the Cambodian people after the war. The survey revealed that more than 90 percent of Cambodians of 6 up to 70 years of age had dental caries or periodontal disease. These figures reflected the scarce levels of both preventative and curative interventions offered and the poor access to them especially in rural areas. Most people did not receive dental treatment because they were too poor to afford private dental treatment, and because basic public services were not generally available. Without adequate services and resources, people with dental problems had to put up with pain, suffering and infections.

Since then, the University of Health Sciences and more recently the new dental faculty at the International University have steadily graduated a new cadre of dentists. In addition, in 1992 the
Ministry of Health in collaboration with World Concern (after that changed to International Cooperation for Cambodia) started the training of medical nurses from rural areas as primary oral health care workers. They are capable of providing basic oral health care to Cambodian people, in line with the WHO Basic Package of Oral Care (BPOC). The Ministry of Health recognises these multi-skilled nurses as the most cost-effective means to provide emergency and preventive oral health care services in rural areas. Oral health services are now formally recognised as part of the Ministry of Health’s “Minimum Package Activities” (MPA). The construction of a National Oral Health Care Delivery System is an emerging priority for the Ministry of Health which is committed to improving the health of rural Cambodians.

In order to create this infrastructure, it is necessary to know the levels of oral diseases in rural areas. Currently, there is insufficient accurate and up-to-date information on which to base strategic planning to promote oral health in Cambodia. To address this issue, the Oral Health Office, Preventive Medicine Department of Ministry of Health is seeking funding to conduct a National Oral Health survey in the year 2011 with representation from the rural areas.

Aims
The 2010 National Oral Health Survey in Cambodia aims to:

- Investigate the prevalence and distribution of oral diseases in the child and adult populations of Cambodia rural and urban.
- Describe and analyze the socio-economic, regional and age-related distribution of oral disease.
- Describe the oral health behaviours and general health behaviours of the population
- Investigate the impacts of poor oral health on activities of daily living among the Cambodian population.
- Assess trends in the prevalence and severity of dental caries by comparing results with those of the 1990-91 survey.
- Evaluate progress toward achieving international and Cambodian children and adult oral health targets.
Survey Methodology

The survey will be planned and implemented by staff of the Oral Health Office of the Ministry of Health with assistance from some international advisers who had experience working in Cambodia. Implementation will be conducted in collaboration Faculty of Odonto-Stomatologie in Phnom Penh. The survey will use a multi-stage stratified random cluster sampling strategy.

Sampling
The study will use probability sample (each individual will have a probability of being selected). The following is a description of each sampling stage.

First step of Selection
Seven provinces will be selected clustered into three geographical areas: river lowland, highland and coastal. In addition, the capital, Phnom Penh will constitute an eighth site. The three geographical areas include the following provinces: (because of budget limitation, number of provinces had been reduced from 8 to 5)

- River lowland zone is formed by 12 provinces and Phnom Penh: Banteay Meanchey, Battambang, Siem Riep, Kampong Thom, Kampong Cham, Prey Veng, Svay Rieng, Takeo, Kampong Chhong, Kampong Speu, Pursat and Kandal. Three provinces will be randomly selected. Phnom Penh will be purposely selected.
- Highland zone is formed by 7 provinces: Ratanakiri, Mondulkiri, Stung Treng, Preh Vihear, Odor Meanchey, Pailin, Kratie. Two provinces will be randomly selected.
- Coastal zone is formed by 4 provinces: Kampot, Koh Kong, Kep, Sihanouk provinces. Two provinces will be randomly selected.

In Yellow: provinces selected after random samples selection in November 2010

Second and third stages of selection
Within each selected province, two districts (one urban and one rural) will be randomly selected giving a total of 10 districts in the final sample.
Phnom Penh will be divided into districts by population size and 2 of them will be randomly selected using probability proportional to size.

Within each districts one commune will be randomly selected giving a total of 8 study sites (communes) outside Phnom Penh and 2 additional study sites in Phnom Penh. There are 10 study sites in total.

**Fourth stage of selection**

In province: At each commune, one (or more) village(s), one primary school and one secondary school will be selected for sampling. Because just one school is selected, the lowest level of representation will be the district (represented by two communes).

In Phnom Penh, one commune (Sangkat), one primary school and one secondary school will be randomly selected from each selected district.

**Fifth state of selection**

In each selected school, one class of children of the desired age will be randomly selected. The required number of children in the desired age-group will be selected through systematic sampling, then interviewed, and examined (ages 12-13 and 15-16). If less than 40 children are present, a second class will be selected for each age-group (i.e., 12-13 and 15-16 years old).

Adults aged 35-44, 60+ years old and parents of 6 years old (with their child is present during the time of interview) will be eligible for selection. All adults within each household within the desired age-groups will be sampled, until the desired number of subjects have been interviewed and examined.

**Study population**

Data will be collected from the following **five age groups:** 5-6 years (and their parents), 12-13 years, 15-16 years, 35-44 years and 60+ years as recommended by the World Health Organization.

- 40 person/each age group *(20 males and 20 females)* x 5 age-groups = 200 subjects/each site
- 200 subjects x 10 sites (8 sites in provinces + 2 sites in PNP) = 2000 subjects
  
  (+ 40 mother of 6 year’s child x 10 site= 400)

  **Total number of study subjects = 2400 subjects**
Study tools

For oral health examination

The oral health status will be determined by a clinical examination by a trained dentist using a mouth mirror, dental explorers (only use when we really need). The dental examination will follow a modified version of the 4th Edition of WHO’s Oral Health Survey Guidelines using their standard forms. Information collected will include number of teeth present, caries prevalence and severity (dmft/DMFT), fluorosis, periodontal status, oral mucosal conditions, dento-facial anomalies and edentulousness.

All examiners, recorders will be required to undertake five-day standardization and calibration training. Interviewers will be prepared to conduct all questionnaires.

Social survey

In addition to the oral examination, there will be a structured interview of each participant aged twelve and over. Three different questionnaires had been developed: one for the 12 and 15-16 years age groups, another for the two adult groups, and the 3rd one for mother of children age 6-7 years.

- The questionnaire for children aged 12 and 15 years will collect information on: personal data, parental occupation, socio-economic status and oral care habits.

- The questionnaire for adults in the survey will seek information on:
  - Personal data: age, sex, location, level of education and occupation
  - Socio-economic status
  - Water sources
  - Self-perceived need for oral care
  - Oral care habits: tooth cleaning, toothpaste use
  - Oral heath care: oral health problems, dental visits, dental health impacts on daily performance
  - Knowledge related to oral health

- The questionnaire for six year old children will be answered by their mothers. The information includes: personal data, socio-economic status and child’s habits.
Data preparation and analysis

When the fieldwork has been completed, the forms will be forwarded to the oral health office for data preparation and data cleaning (editing). The data will be weighted to adjust for under and over sampling of subjects in specific age groups across all clusters. Data analysis will include weights (inverse the probability of selection) to account for the sampling design.

Data will be presented for each condition for each age group. At the national level, data will represent urban and rural areas. Data will represent each geographical area and independently each province included in the sample.

**Budget plan:** (See details expense in attached file)

Budget has planned to cover for:

- Administration: $ 1,000
- Instruments and materials needed: $ 1,284
- Printing and photocopy: $ 2,400
- Gift for participants: $ 2,000
- Calibration $ 540
- Data collection: $ 9,000
- Transportation: $ 4,000
- Data entry, analysing and report: $ 3,000
- Miscellaneous: $ 1,000

Total: **US$ 24,224**