

Introduction

In the first week of December 2008 a Medical Checks for Children team lead by paediatrician Inès von Rosenstiel checked and treated 797 children, free of cost, at 4 different locations in Kathmandu valley.

The medical checks are organised in close cooperation with the NGO Bal-Balika-Nepal of Susanne Volkmann with assistance from Ram Thapa of the Honorary Royal Nepalese Consulate. and the NGO C.H.A.N.C.E. for Nepal, VK of Barbara Datson.

The scheduled team members come from the Netherlands and Germany. Due to political turmoil in Thailand and India on the dates of scheduled flight from Europe to Nepal, it was impossible for the German team leader Suzanne Lucker and members Marika Guillaume and Stefan Redlich to join us in time. MCC shows great gratitude for their financial and organizational efforts and support during the preparations for this year's jointed mission.

Besides Ines von Rosenstiel, the other doctors in the team were Beatrijs Bartels, pediatric cardiologist, Marion Eckart, pediatrician, Gebrand van den Bosch, resident psychiatry and Annemarie Schalkwijk, internship Kanti Children's Hospital, Kathmandu.

The Dutch team was completed by Rachel Rijnders, intensive care nurse, Michiel Cohen de Lara, board members MCC and Marijke Cohen de Lara, psychologist.

The medical checks were performed at the following 4 locations:

1. Orphan Children's Rescue Centre (OCRC)

The small orphanage Orphan Children's Rescue Centre gives home to 48 children aged 2-16 years, from remote areas of Nepal. The children are looked by two staff members, called caretakers, who work under the supervision of the director Mr. Amir. In 2006 the OCRC was also visited by MCC, with a follow-up visit in March 2007.

In 2007 The ORRC moved from the suburb of Kathmandu to a new building in Bhaktapur.

A small vegetable garden behind the house was proudly shown. It is a successful initiative after the MCC check in 2006 to combat insufficient diet. 15 younger children had found caretakers outside OCRC by this year.

2. Hatiban Social Service Centre, Setideri

The second location was the village of Hatiban, located on the hillside southwest of the city facing Kathmandu valley. In Hatiban village 260 children were medically checked on two days. Support of multiple local health workers facilitated our work in a fantastic way, supervised by Prami.

Aryja Tara School (visited only for quality control)

In the period of eight years the Arya Tara School has grown phenomenally to an establishment that boasts a five storied well equipped live in institution for 50 nurses who also receive regular volunteer medical check ups by French and American volunteer organization. Prior to our arrival the nuns were checked by the VS doctors one month before, making MCC medical checking unnecessary (now and in the future). It gives us a great pleasure to see Arya Tara School flourishing in all their activities.

3. Jalupa School, Baniyatar

As in 2006 and 2007, we visited the Jalupa School giving mainly Tamang children the opportunities in education and health which they deserve. On two consecutive days we checked 349 children, the check was supervised by the new director of the Jalupa School.

4. Triple Gem School

The Triple Gem School was established in 2000 and is situated at Swayambhu which is a world heritage site south of Kathmandu. The chief aim of Triple Gem is to provide quality education to its 400 students, so they may become responsible and respected citizens of the world. Under the leadership of its founder, Principal Rev. Raju Lama Kodan, students receive from Kodan and his dedicated staff a caring, challenging and supportive learning environment in which to flourish. Unlike many schools, Triple Gem School opens its doors to the disadvantaged and oppressed class communities, street children and children with special needs. Any child can be admitted irrespective of age, caste, creed, colour or religion. The school has its own hostel for children who are orphaned and deprived, which offers them a safe and secure environment with three good meals a day.

C.H.A.N.C.E. for Nepal finds sponsors for some children which Triple Gem opens its doors to and who otherwise would receive no education.

Most of the medical cases which received our attention were vitamin deficiencies, malnutrition, anaemia, pneumonia, growth abnormalities, skin problems and worm infections. On each location the children stood in line for medical care. They were given a numbered form and were admitted to the first station where their name, age, MCC number and school number were written on the form by a local helper or translator. This paper was then given to the child who kept it until his or her treatment had been completed. After their weight and height had been taken, pulse and oxygenation of the blood were measured and on the third station the blood was checked for haemoglobin. A complete physical examination was done by one of the doctors who subscribed treatment when needed.

Health education on dental care, hand washing and toilet hygiene was delivered to the child and its care giver, before handout of a small gift to the children. Afterwards the child was sent to the last station where the clinical forms were kept after medication was dispensed by a local nurse or health worker or pharmacist. Every evening an analysis of the charts and diagnosis was made and referrals for the children for extra diagnostic procedures was completed.

As with most medical missions, we made efforts to include local medical workers in the care of the children. We greatly respected their vast knowledge and experience. Medical workers and teachers would like to especially thank Ishwar and Jarin our translators and medical helpers for their great support during the whole week.

Over the last nine years I have participated in medical missions at different institutions in Kathmandu. Witnessing the evolution of the programs and the development of local expertise is exciting. It is stimulating to work with team members from different countries, exchanging ideas and to learn from each other. We enjoy learning from the local cultures and experiencing the beauty of people in this Himalayan destination. I am inspired by the efforts of our hosts facing the vast medical demands with limited supplies. Nurses and doctors in the Slotervaart Hospital, Amsterdam, in the Netherlands, have been helpful in salvaging supplies; friends have donated stuffed animals and stickers to be given to the children. Both medical and non-medical volunteer work is fantastic and I am proud to work with such kind and generous individuals. I hope to return to Nepal next year to see the smiling faces of the children and to be amongst the Himalayas.

Diagnosis and categories of ailments:

total number of children	797	
"healthy"	582	73 %
one/more diseases	215	26 %
referrals specialist	40	5 %
Referrals dentist	71	8,9 %

During this week of 797 children were checked by a team of 8 people.

We could not find any serious disease in 582 children, the ailments of these children could be treated on the spot.

In the other 215 children we diagnosed one or more, longer treatment disease(s) of whom 40 needed a referral to specialists.

Table 1: Main diagnosis in percentage on the different locations
MCC mission Kathmandu Valley 2008

	OCRC n= 29	Hatiban n= 194	Jalupa N= 349	Triple Gem n= 225
0 – 5 year	13,7%	18%	14,9%	20%
6 – 12 year	51,7%	54,1%	69,3%	59,1%
12 – 18 year	34,5%	27,8%	16%	20,4%

	OCRC n= 29	Hatiban n= 194	Jalupa N= 349	Triple Gem n= 225
Underweight	5,2%	10,7%	17,4%	20,4%
Stunting	24,1%	32,4%	36,1%	12,3%

	OCRC n= 29	Hatiban n= 194	Jalupa N= 349	Triple Gem n= 225
Anaemia	6,8%	16,4%	16,3%	23,6%
Pneumonia	3,4%	5,6%	4%	8,8%
Skin infections	34,5%	6,1%	8,5%	17,3%

	OCRC n= 29	Hatiban n= 194	Jalupa N= 349	Triple Gem n= 225
Referrals dentist	-	6,7%	4,5%	16,8%
Referrals specialist	-	2,5%	2,8%	12,8%

***NB: Interpretation drawn from percentages need to be correlated with the different age-patterns at the different locations**

1: Anaemia (116 children above 12 years did not have their HB checked as forseen. Anaemia is the most prevalent micronutrient disorder; it is not a diagnosis, but a symptom of an underlying nutritional problem or disease. In Nepal no national policy has been implemented to provide iron supplements to pregnant women or young children. While iron deficiency is frequently the primary factor contributing to anaemia, it is important to recognise that the control of anaemia requires a multi faceted approach which, through integrative interventions, addresses the various factors that play a significant role in producing anaemia in a given community. In addition to iron deficiency, infectious diseases such as worm infections, other chronic infections, particularly HIV-AIDS and tuberculosis, malaria, as well as other nutritional deficiencies, are especially important.

We treated the children with anaemia with iron supplements, including folate and vitamin B12 for three months (3 mg elemental iron/kg/day). Compared to previous years the prevalence of anaemia in OCRC (6,8%), Hatiban (16,1%) and Jaluja (16,5%) school was strikingly lower. Possible reasons for the improvements are progress of socio economic local situations together with positive effects of MCC interventions dunning the last years (health awareness, iron treatment and dewonning campain). The children in the Triple Gem School (first time location) show a high percentage of anaemia (23,2%), á challenge for future investment of MCC help on location.

Children whose hemoglobin value was only slightly (less than 0.5 mmol/l) below the normal range for age were treated with a three months course of multivitamins.

2: Worm treatment

Due to the relationship between helminth, *Ascaris lumbricoides*, *T. trichiura* and anaemia the children were simultaneously treated with Albendazol. Comparing the prevalence of anaemia in the 4 different locations the youngest age group showed up to 23% prevalence of anaemia. In the age group above five the prevalence was around 12%. In the last years a de-worming program was established in Nepal where there is a high prevalence of *A. Lumbric*, helminth, Hookworm and *T. Trichiura* in school-aged children. We treated children who were not in the de-worming program on the spot with Albendazol and left medication for repeating the treatment after six months. Health education at the orphanage and schools was aimed at increasing awareness of worm transmission, the disabilities caused by intestinal helminth and the importance of the de-worming program every half year.

Simple ways of improving personal hygiene and sanitation through hand washing, nail trimming, wearing of shoes and use of a latrine and clear water supplies were encouraged.

Although all members of a population can be infected by worms, those who are at most risk and would benefit most from preventive interventions are the pre-school (2-5 years), school age children, adolescent girls and women of childbearing age.

3: Growth abnormality and malnutrition

Of the children we checked 89 were underweight and another 242 showed the prevalence of stunting. Diagnostics in evaluating children with stunting included specific urine analysis with stick method on glucose and albumen was not performed during this year's mission.

Percentages of stunting indicating moderate to severe growth retardation is correlated with living conditions, showing higher prevalence in poor squatters and street children versus rural and urban children in middle class schoolchildren.

During clinical assessment of the children checked by MCC main parameters of malnutrition were skin, hair, nails, mouth, subcutaneous tissue, muscle bulk and abdomen. Two children were referred to be enrolled in the protein energy malnutrition (PEM) scheme in Kathmandu. All the stunted children were managed by correcting possible nutritional deficiencies by a three months multivitamin treatment, next to counseling of the care giver regarding child nutrition parasite infections.

Due to high food prices, Nepal has the highest levels of malnutrition in South-East Asia. A study conducted in 2006 by the Ministry of Health and Population shows that 49 percent of children under the age of five are stunted, reflecting chronic malnutrition. A recent report of the World Bank shows that one percent decrease in adult height due to childhood stunting correlates with 1.4 percent loss of productivity. The report shows furthermore the fact that stunting in general is associated with as much as eleven points decrease in Intelligence Quotient (IQ). According to UNCCA the two major causes of malnutrition are poor feeding practices and inadequate childcare. Adequate food intake and education programs addressing nutritious food need to be provided nationwide.

4: Pneumonia

The 46 children with a severe acute respiratory infection (ARI) were treated with appropriate antimicrobials and home treatment advice.

"Pneumonia", "sannipat", "fast/difficult breathing", "chest indrawing" and "inability to suck milk" are the key words used by care-takers indicating a (severe) ARI.

The principles of the Integrated Management of Childhood Illness (IMCI) for recognition and treatment of pneumonia were transferred to the local health workers.

In 17 children an x-ray chest was ordered (referrals) due to suspicion / risk for tuberculosis.

Parameters were a long-lasting cough longer than two weeks, especially with a wheeze, as well as enlarged lymph nodes, liver on spleen, as well as a history of no improvement on earlier antibiotics given for suspected pneumonia. Standard vole treatment for TB is offered free of charge at the Kanti Children's Hospital.

5: Cardiac Murmurs

The MCC carousel includes a cardiac examination. We referred six children suspected of having a heart disease to the Kanti Children's Hospital for evaluation by a cardiologist.

In Nepal the prevalence among school age children in Kathmandu of rheumatic heart disease is 1.2/1000 and 1.3/1000 for congenital heart disease. Mitral regurgitation and atrial septal defects being the most common heart problems (Indian Heart J 2003;55:615-618). MCC is planning a special.

6. Stomach ache and other gastrointestinal complaints

During our health checks we encounter a rising percentage of (older) schoolchildren with complaints of stomach pain and gastric pain. In the absence of weight loss, bloating or fever these pains could be stress induced. Pressure on adolescents to succeed academically is well known in Nepal, along side with problems at home. Data on milk products sensitivity, gastritis or peptic ulcers are currently lacking, as well as the prevalence of Helicobacter pylori bacteria. One study done in Nepal reported an overall higher rate of infection with H. pylori in an urban population compared with a rural population (25.8 % versus 10.2 %) (Eur J Gastroenterology 1998;10:47-49). MCC will expand their medication list with omeprazole treatment in 2009, with triple therapy for H. Pylori. Acute diarrhoea disease tends to be self limiting. We treated 6 children with antibiotics, bloody gastro-enteritis; we didn't find a critically ill child with severe dehydration edema.

7: Ear-Nose-Throat (ENT)

The prevalence of acute ear infections and tonsillitis was comparable with the prevalence in the Netherlands. Chronic or recurrent ear infections are a common condition encountered by the ENT surgeons in Nepal. Effective initiatives for better hygiene and nutrition will play a part in diminishing chronic ear infections and their complications. Treatment of middle ear infections with antibiotics have a big impact in preventing deafness as well as itching, pain and discharge was often seen with otitis externa and treated with antibiotic / steroid eardrops. Recurrent nose bleeds were associated with chronic rhino-sinusitis.

8: Skin diseases

Among the skin diseases the following disorders are the most common in children in Nepal: impetigo, tinea capitis, scabies, viral skin disorders (mainly molluscum contagiosum) pediculosis capitis, dermatitis and reactions due to insect bites.

A peak of prevalence for pyoderma was observed among 5-9 year olds and in the orphanage children in the Triple Gem School. The superficial mycosis showed a peak in older children, Pyoderma, scabies and tinea capitis are more common in overcrowded households, orphanages or refugee camps. The role of traumatic sores as a predisposing factor for pyoderma is also common. Especially legs and less commonly ears (because of septic ear piercing in girls) were common of posttraumatic pyoderma. The children were treated with Fusidic crème and/or macrolides for pyoderma. Antifungal cream (eventually in combination with hydrocortison) was given for fungal infections and hydrocortison crème was given for different forms of dermatitis. We did not treat the children with tinea capitis with griseofulvine as there were limited supplies and the great majority heals spontaneously when in puberty.

MCC reports a higher prevalence of de-pigmentation of the skin in the children of Jalupa school. Apart from post inflammatory hypo-pigmentation following healing and especially certain inflammatory disorders such as dermatitis, burns and skin infection, pityriasis versicolor and/or alba could be reason for de-pigmentation. Another cause is a lack of Vitamin A, Zinc or Vitamin B 12.

Treatment with multivitamins for three months was given for the children with hypo/hyper pigmentation, cheilosis, glossitis, magenta tongue or bleeding gums.

9: Eye problems

Especially in the group of children above five years of age a rather common complaint was dry and/or painful eyes. Xerophthalmia can be attributed to Vitamin A deficiency. Vitamin A deficiency effect growth, the differentiation of epithelial tissues and immune competence. The most dramatic impact, however is on the eye and includes night blindness, xerosis of the conjunctiva and cornea and ultimately corneal ulceration and necrosis of the cornea. Vitamin A deficiency occurs when body stores are exhausted and supply fails to meet the body's requirements, either because there is a dietary insufficiency, requirements are increased, or intestinal absorption, transport and metabolism are impaired as a result of conditions such as diarrhoea. The most important step in preventing Vitamin A deficiency is insuring that children's diets include adequate amounts of carotene containing cereals, tubers, vegetables and fruits. This year the Jalupa school participates in the nationwide vitamin A supplementation program. Two children were referred for specialized assessment and treatment (1 cataract and 1 spectacle).

10. Urinary tract infections

Other than the last 2 years MCC did not perform urine screening test on the spot (lack of manpower and materials). Two children were referred for further investigation due to clinical surge ion of UTIC fever, frequency, dysuria or Hematurie. Attention as prayed to toilet hygiene deworning and emotional dis turbance (enuresis).

11. Neurological disorders

In 2 children, other wise well, the was a positive history suspicions of epilepsy; they were referred for EEG, neuron imaging and possible treatment. In 2 adolescent girls other paroxysmen, syncogne was diagnosed

12. Dental

This medical mission to Nepal did not include a dentist. The number of caries cases mentioned underestimate the prevalence of dental disease in the children we checked with severe toothaches and caries. At the Orphan Children's Rescue Centre, Hatiban Social Service Centre, Jalulpa School and Triple Gem School, MCC team members gave education to teachers and children on brushing the teeth, toothpaste use and usage of sugar (sweet or sweet drinks between meals). Due to the absent team members from Germany the annual giving out of teeth brushes could not be performed.

13. Pharmacopoeia

Doses of medications have been careful checked and specific instructions were given to the caretakers by our Nepali staff. The choice for iron or Vitamine suspension or tablets were made suitable for particular age groups and developmental age of 797 children 41 % received multivitamins by clinical assenment and or stunting

Education the health workers and caretakers

One of the important tasks of MCC is to encourage the continuation of health education of the caretakers and older children. During our week we had teaching sessions on common diagnoses of frequent illnesses and medication. We especially focused on anaemia and malnutrition, on balanced diet, infection, parasites and failure to thrive. Our information mainly consisted of knowledge and practical advice about nutritious food and vitamin supplements, as well as hygienic and health promotion issues. Due to a recent study in Nepal by two students of the Academic Medical Centre MCC heath education program has progrened to high standards and will be added as a separate station to the medical carrousel in the future.

Future medical needs

On all the locations visited, there is a strong need for comprehensive and systematic health promotion and preventive measures. Special emphasis needs to be put on personal hygiene and good eating habits and nutritious food. Apart from public health issues primary care for all the children in their vicinity needs to be provided by local Nepali health workers and doctors. Due to a recent study in Nepal by two students of the Academic Medical Centre the MCC health education program has programmed to high standards and will be added as a separate station to the medical carousel in the future. As we encountered several children with lacerations, management of minor injuries (cleaning, the debridement and advice on anti-tetanus prophylaxis) was given on the spot.

Last words

This trip has been another wonderful experience in our lives. Personally we are happy to have seen Thamel's streets filled with tourists again after long years of political instability. We are looking forward to return to Nepal in 2009.

Amsterdam, 31st December 2008.
Ines von Rosenstiel