

Introduction

In the second week of November 2007 a Medical Checks for Children team lead by paediatrician Inès von Rosenstiel checked and treated 1147 children, free of cost, at seven different locations in Kathmandu valley.

The medical checks are organised in close cooperation with the NGO Kinder-Nepal/Bal Balika of Suzanne Lücker with assistance from Ram Tapa of the Honorary Royal Nepalese Consulate.

The team members came from The Netherlands and Germany. A number of our members have participated and returned with their own stories for the last eight years.

Besides Inès von Rosenstiel, the other doctors in the team were Mariska Zwartsenburg, emergency physician, Joost Overgaauw resident general physician, Viola Weeda, resident general surgery and Janneke Prein, resident psychiatry. The Dutch team was completed by Kees Donkervoort, head of a general hospital in the Netherlands and member of the board of MCC. Susanne Lücker, medical technical assistant at Henkel industries and chair of Bal Balika, her friends Marika Gauillaume and Stefan Redlick, medical adviser at Boehringer Ingelheim formed the German part of the team.

Medical Checks for Children and the Bal Balika team members brought supplies from Europe. With the help of Prakash Bhatta (www.prakashbhatta.com) we bought local medication from a pharmaceutical wholesaler in Kathmandu.

The medical checks where performed at the following seven locations:

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 staffmembers, 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.

Recently, 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 succesfull initiative after the MCC check in 2006 to combat insufficient diet.

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 healthworkers facilitated our work in a fantastic way.

Arya Tara School, Pharping

At the Arya Tara School, located in Pharping we checked 47 nuns in age from 7-21 years old. In 2006 this school was also visited by MCC.

The Arya Tara School gives home to 50 nuns who come from some of the poorest and most remote villages in Nepal, India and Tibet. They study Tibetan Buddhist philosophy, Nepali, English, mathematics, science and computer studies daily and have weekly classes in supportive subjects such as art, health care and geography.

Jalupa School, Baniyatar

As in 2006, we visited the Jalupa School where the Jesuit priest father Greg and sister Elisabeth, from the Godavari Alumni association, coordinate this social work, giving mainly Tamang children the opportunities in education and health which they deserve. On two consecutive days we checked 299 children. Most of the children had just returned from a month holiday at their parents places where they celebrated (Tihar) festival time. Some of the children only returned the week after our check and we hope to see them in 2008.

Tibetan Refugee Reception Centre, Kathmandu

Each year an estimated 3000 Tibetans travel by foot over the Himalayan mountains in an effort to reach India. Most flee human rights abuses, religious persecution, or political repression at the hands of the Chinese authorities in Tibet. The long journey to the Nepalese border can take from 2-6 weeks depending on the weather and the point of departure. In the early 1990 the Tibetan government in exile purchased a property on the outskirts of Kathmandu. In consultation with the United Nations high commissioner for refugees (UNHCR) the Tibetan Refugee Reception Centre was build to assist new arrivals with shelter, food and medical and psychosocial services. Each year MCC comes back and this time 27 children were medically checked and treated by the MCC team.

Kingdom Kids Orphanage, Kathmandu

This Christian orphanage is a new location for the annual medical checks. It gives home to 16 boys, former street kids. This well run children home is supported by friends of the Netherlands (www.all4one).

Pegasus school, Bouddanath, Kathmandu

Another new location participating in the annual MCC check was the Pegasus school run by the principal Kinley Dhendup. The contact was made by Martha Rose from Shenpen-projects (www.shenpennepal.org). Together with a part of the MCC teams who visited Pokhara and Dharan, 21 team members checked 453 children in one single day. Extra help was provided by two nurses from the Sechen Clinic, Kathmandu.

Most of the medical cases which received our attention were 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 schoolnumber 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 temperature 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. 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 and we would like to especially thank the nurses in Hatiban village and the specialised nurse and nurse practioners of Godavari Alumni Association for their help in Jalupa school, together with the two nurse of Sechen clinic helping at the Pegasus school.

Over the last eight 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; others have donated stuffed animals, stickers and toothbrushes 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	1147	
“healthy”	803	70 %
one/more diseases	344	30 %
referrals	26	2.3 %

During this week of time MCC checked 1147 children.

We could not find any serious disease in 803 children, the ailments of these children could be treated on the spot.

In the other 344 children we diagnosed one or more disease(s) of whom 21 needed a referral to specialists.

In the following table's the children seen at the Tibetan Refugee Reception Centre are not included because MCC will not check this children in the future while the will be travelling out of Kathmandu in the following months.

Table 1: diagnosis/illness MCC mission Kathmandu Valley 2007

Diagnosis/illness	Number of children	Percentage
Anaemia	226	20 %
Severe anaemia	23	2 %
Skin diseases	117	10 %
Scabies/Lice	14/12	2.3 %
Lower respiratory	124	11 %
Cardiovascular	6	0.5 %
Neurological	7	0.6 %
ENT	27	2.4 %
Urinary	9	0.8 %
Endocrine	3	0.3 %
Underweight	146	13 %
Stunting	319	28 %
Eye problems	19	1.7 %

Table 2: Main diagnosis in percentage on the different locations
MCC mission Kathmandu Valley 2007

total number of children	OCRC n=48	Aya Tara n=47	Hatiban n=260	Jalupa n=299	Street Kids n=16	Pegasus n=453
Anaemia	39.5 %	36 %	23 %	19.7 %	6 %	15.3 %
Severe anaemia	6.2 %	6.3 %	3.8 %	1%	-	0.9 %
Pneumonia	8 %	2 %	18 %	7.3 %	-	2.3 %
Underweight	27 %	7 %	33 %	33 %	33 %	24 %
Stunting	41 %	14 %	38 %	32.7 %	37 %	31.6 %

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

1: Anaemia (249)

Anaemia is the most prevalent micronutrient disorder. 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 two months.

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 seven different locations the youngest age group showed up to 45% prevalence of anaemia. In the age group above five the prevalence was around 16%. 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 (146/319)

Of the children we checked 146 were underweight and another 319 showed the prevalence of stunting. Diagnostics in evaluating children with stunting included specific urine analysis with stick method on glucose and albumen.

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.

At present, 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 (124)

The 124 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 a pneumonia were transferred to the local health workers.

5: Cardiac Murmurs (6)

The MCC carousel includes a cardiac examination. We referred six children suspected of having a heart disease to the Kanti Childrens 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).

6: Stomach ache and other gastrointestinal complaints

During our health checks we encounter a rising percentage of (older) schoolchildren with complaints of stomach 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).

7: Ear-Nose-Throat (ENT) (27)

The prevalence of acute ear infections 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.

8: Skin diseases (117)

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

Especially in the Tibetan refugee camp where it was difficult to differentiate between infected bites from lice, scabies or eczema.

A peak of prevalence for pyoderma was observed among 5-9 year olds, with a progressive constant decrease over three years of age.

The superficial mycosis showed a peak in older children, 16% at 13 years of age, and a prevalence of 11% in the 14-15 year olds versus 3 % in the 5-9 year olds.

Pyoderma, scabies and tinea capitis are more common in overcrowded households, orphanages or refugee camps. In the Arya Tara School there was a lesser prevalence of tinea capitis after our advise in 2006 not to share the raiser blades for shaving the nuns heads.

The role of traumatic sores as a predisposing factor for pyoderma was also common.

Especially legs and les 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.

In 2006 MCC reported a high prevalence of de-pigmentation of the skin in the Jalupa school. Apart from post inflammatory hypo-pigmentation following healing and 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, Zink or Vitamin B 12.

This year the children from the Jalupa School showed a lower prevalence of de-pigmentation compared with our observations in 2006. A plausible reason for this could be the treatment with multi vitamins for two months given by MCC in 2006.

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.

10: Urinary tract infections (9)

We performed an urine screening test in the children with fever and/or signs of stunting to exclude suspected kidney disease. The dip-stick test showed slight proteinuria in 32 of the 319 children. Some protein will appear in the urine if the level of protein in blood becomes high (infections) even when the kidney is functioning properly.

Antibiotics, severe emotional stress and strenuous exercise can interfere with the test. We found nine children with signs of urinary tract infection, they were treated with antibiotics for seven days and fluid advice. No child was found to have a nephrotic syndrome.

11: Dental

This medical mission to Nepal did not include a dentist. The number of 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 and the Jalulpa School, MCC team members gave out toothbrushes and educated teachers and children on brushing the teeth, toothpaste use and usage of sugar.

Education the health workers and caretakers

One of the important tasks of MCC is to encourage the continuation of 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.

The Jalupa school signed an agreement with the Shenpen Foundation, to jointly operate mobile clinics. Four nurses and two nurse practitioners were an integral partner of our MCC clinics and a wonderful example of self reliance after teaching sessions from our team on day one.

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.

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.

Hopefully the 2007 elections will stabilize the political climate with stimulation of ongoing development for good education and health for all children of Nepal.

We are looking forward to return 2008.

Amsterdam, 31st December 2007, Susanne Lückner and Inès von Rosenstiel, MD