Medical Checks for Children

Medical Report Kolkata, 2014

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I Introduction

From the 2nd of February until the 8th of February 2014, a Medical Checks for Children team (MCC) team visited Bhagabatipur, Mandirbazar, near Kolkata in India. We checked and treated 1068 children aged between 0 and 12 free of cost at three different locations.

The team stayed in the Purnalakshmi Hotel in Diamond Harbour, a suburb of Kolkata, on the banks of Hooghly River, quite near where the river meets the Bay of Bengal. Diamond Harbour is a day trip away from inner-city Kolkata and depending on road and traffic conditions it takes 2 to 3 hours to get there.

The children we checked are attending pre-primary and primary schools in the underprivileged rural areas in West Bengal, Distric South 24 Parganas, and have limited access to medical facilities. Especially in West Bengal there is a parallel health care market. Rural Medical Practitioners (RMP) often practice modern allopathy without any formal training ('quacks'). Compared to the government facilities and private doctors there is a prominent dominance of the RMP in rurual outpatient care. The website www.futurehealthsystems.org states: "The source of main treatment for the local population is private formal 22%, government 12%, NGO2%, and RMP 64%. RMP's have knowledge on common disease treatment procedure and medicines, but their major threat is rampant, indiscriminate use of antibiotics."

This year's free medical campaign of MCC location Bhagabatipur was an explorative, first medical mission, organised in mutual cooperation/collaboration and with financial support of the Dutch NGO FEMI (point of contact Leo Verzijl) and the Indian NGO Young Men's Welfare Society, led by the honourable Mr Shourabh Mukherji.

The Young Men's Welfare Society was founded in 1976 with the blessings and patronage of Nobel Laureate Late Mother Teresa. His Holiness The Dalai lama came to Kolkata on the 15th January 2007 and inaugurated their 40th anniversary celebrations. YMWS has until date provided pre-primary and primary education to 65,000 under-priviledged children. After 30 years of focussing on education, Mr Mukherji thought the time was ripe to broaden this focus to health.

Medically, 40 to 60 % of the children in South 24 Parganas district receive their full vaccinations, and apart from the local community centres no other medical organisation is involved in the region we checked. Family physician and homeopath Dr. Chandra has been working twice a week in the region for the last four years and directly takes care of the sick village men, women and children. The nearest hospitals in the area are Kulpi Hospital, with a travelling time of 40 minutes, and the Hospital in Diamond Harbour (30 minutes). In Siddhiberia, Chamnabuni, Chunfuli and Himli there are special facilities for disabled children. The Sundarban Social Development centre in Polerhat has working relations with the Special Nutrition Hospital for malnourished children and contact with the Eye Hospital.

The Dutch team consisted of Miguette Jadoul (organisational missionleader), Ines von Rosenstiel (pediatrician and medical mission leader), Thea Teertsrta (pediatric intensivist), Beatrijs Bartelds (pediatric cardiologist), Roelof van Ewijk (pediatric resident), Linsey de Boer (pediatric resident), Minke Huibers (pediatric resident,) Ilse Westerbeek (pediatric resident), Marc Jonkers (pediatrician), Renée van Hoof (public health student), Carola Oranje (nurse/ coach) and Ramon van der Zee (pediatric intern).

Technical equipment, toothbrushes,toothpaste and gifts for the children and some of the medical supplies were brought from the Netherlands by the team members. All of the medication was ordered through Dr. Nordan Otzer from PG Hospital in collaboration with a local generic drug company, with Dr. CM Singh as our contact person.

Support from the local YMWS organising committee consisted of the following (amongst others):

- Selection of the children, each accompanied by a caregiver.
- Information transmittance to the local communities.
- Facilitating board and lodging for all MCC team members.
- Transportation of the MCC team to the check location.
- Prior announcement of the medical campaign on the location.
- Making copies of all necessary papers.
- Giving support in ordering and delivering the medication.
- Giving support to the MCC team during the medical campaign.

In Bhagabatipur our group consisted of the YMWS management team Ms Konica Paul Chakraborty, Mr Dhiraj Kanti Mondal (Assistant Headmaster of high school), Ms Chandra Ray (Headmistress), our Indian colleague, Doctor B. Chandra, family physician and homeopath, and the 12 Dutch team members accompanied by a daily changing number of Indian volunteers/translators and drivers. In total the multidisciplinary group during the check week consisted of roughly 50 members on all the different locations combined, who performed the children's medical health campaign within the three blocks of South 24 Parganas district.

The MCC team was very happy with the cooperation with the local organiser YMWS, and the active, direct support and enthusiasm of the local volunteers who gave MCC the opportunity to work in West Bengal and to facilitate all aspects of the medical campaign.

II Medical Checks for Children on location

Table1: Number of checked children per day and geographical location

	03-02-14	04-02-14	05-02-14	06-02-14	07-02-14	08-02-14	Total
Bhagabatipur	180	141	0	0	3	0	324
Jaynagar	0	0	1	0	189	147	337
Raghunathpur	0	0	186	221	0	0	407
Total	**180**	**141**	**187**	**221**	**192**	**147**	**1068**

The children were seen free of cost at the MCC carousel, which consists of the following stations:

1. Registration
2. Height and weight (saturation occasionally)
3. Blood test (haemoglobin)
4. Physical examination
5. Distribution of medication (pharmacy)
6. Education on hygiene, tooth brushing (a tooth brush was given to each child) and hand washing.

Data collection

Anthropometric measurements were recorded, and a finger prick sample was taken to determine the haemoglobin (Hb) concentration. Each child was examined by a clinical officer. History of illnesses in the preceding weeks was recorded. Specifically, caregivers were asked if the child had fever, respiratory infection, diarrhoea, vomiting, eating soil (pica), decreased appetite, weight loss or pain. They were also asked if their child had received prior treatment, especially deworming within the last half year, iron or multivitamin suppletion or antibiotics.

At the end of the MCC carousel, the data of the checked children were analysed, which made it possible to make a quick scan of children's health every evening, which was communicated to the team. Simultaneously, a hand-out of the prescribed medication was given to the caretakers on Dr. Chandra's request, to facilitate a possible follow-up.

III General diagnoses and categories of ailments/treatment and referrals

During the week, MCC checked 1068 children at three different locations within District South 24 Parganas, West Bengal.
The three schools are YMWS teaching schools, who open their doors to disadvantaged and marginalized communities. They offer safe, clean environments, proper toilets, drinking water and the location of Bhagabatipur has even a kitchen garden with delivery of one brunch a day for the schoolchildren.

Though in general the primary focus of MCC is on 0 to 5 year olds,the focus here was on checking vulnerable nursery and school children up to 9 years old. Of all checked children, 34% of the children was four or younger, with 65% children 5 to 12 years old.

Table 2: Summary of checked children per geographical location, age and gender

	Total		***Bhagabatipur***		***Jaynagar***		***Raghunathpur***	
	1068		***Total=***	***324***	***Total=***	***337***	***Total=***	***407***
Age	***N***	***%***	***n***	***%***	***n***	***%***	***n***	***%***
<=1 year	*4*	*0%*	*0*	*0%*	*0*	*0%*	*4*	*1%*
>1 en <5 years	*361*	*34%*	*122*	*38%*	*118*	*35%*	*121*	*30%*
<5 years	*365*	*34%*	*122*	*38%*	*118*	*35%*	*125*	*31%*
>=5 en <=10 years	*698*	*65%*	*199*	*61%*	*219*	*65%*	*280*	*69%*
Gender								
Boy	*548*	*51%*	*175*	*54%*	*155*	*46%*	*218*	*54%*
Girl	*520*	*49%*	*149*	*46%*	*182*	*54%*	*189*	*46%*

The **overall child health status** of the children was **slightly poor**, with a high percentage of **32% underweight, 50 % anaemia** and **49% caries**.

The main alleged causes were water borne diseases, respiratory infections, skinproblems, otitis media, cough without fever and abdominal pain, nausea, vomiting or headache.
Dermatosis and infected wounds were also a common clinical finding. Among the children examined 61% (anaemia excluded) were free of clinically detectable disease, 38% suffered from mild symptoms and only 0.2% from more severe illness, requiring prompt medical treatment.

Most of the ailments could be treated on the spot. Main treatments on the spot were prominently directed to secondary prevention, with iron supplementation, multivitamin supplementation, and deworming as well as active treatment of worm investations.

Table 3: Main treatment among the children per geographical location

	Total		**Bhagabatipur**		**Jaynagar**		**Raghunathpur**	
	1068		**Total= 324**		**Total= 337**		**Total= 407**	
	N	**%**	**n**	**%**	**n**	**%**	**n**	**%**
ferro	117	11%	48	15%	28	8%	41	10%
mother iron	0	0%	0	0%	0	0%	0	0%
multivitamins	668	63%	173	53%	234	69%	261	64%
anti-worm	589	55%	211	65%	166	49%	212	52%
acute worm	319	30%	61	19%	120	36%	138	34%

Only 21 children, less than 2%, needed antibiotics. Five children were treated with antibiotics for pneumonia, nine for urinary tract infection, and the rest for bacillary dysentery or suspected giardia infection.

None of the checked children needed to be admitted to hospital during our work. 33 children were referred to the outpatient department of the local hospital (in Diamond Harbour) for further diagnostics, 39 cases will be rechecked after some weeks by Dr. Chandra himself, and 21 children had other additional advice.

Table 4: Follow-up of all children per geographical location

	Total		**Bhagabatipur**		**Jaynagar**		**Raghunathpur**	
	1068		**Total= 324**		**Total= 337**		**Total= 407**	
	N	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Dentist	104	10%	27	8%	28	8%	49	12%
Specialist in hospital	33	3%	12	4%	9	3%	12	3%
Revisit	39	4%	2	1%	24	7%	13	3%
X-thorax	0	0%	0	0%	0	0%	0	0%
ECG	0	0%	0	0%	0	0%	0	0%
Urine + Kidney function	2	0%	1	0%	0	0%	1	0%
Bloodtest after 3 months	2	0%	1	0%	0	0%	1	0%
International organisation	0	0%	0	0%	0	0%	0	0%
Other…	21	2%	9	3%	6	2%	6	1%

For three children with phimosis and two boys with inguinal hernia possible operations will be discussed with pediatrician Dr. Maity in the Diamond Harbour hospital after collaboration talks with the chief of the Hospital and Mr. Shourabh Mukherji from YMWS.

IV Specific diagnoses and categories of ailments/treatment and referrals

1: Growth abnormality and malnutrition (underweight 32 %, stunting: 20 %, wasting: 18%)

Malnutrition is thought to account for one third of all deaths of children under five (UN Millennium Developmental Goals). Malnutrition has been related to poor cognitive and school performance. There is strong evidence to suggest that malnutrition places children under the age of 5 at increased risk of death. The main factors contributing to malnutrition in West Bengal are rural poverty, lack of sanitation, poor living conditions, child labour and a lack of energy, protein intake, iron and multivitamins. In a study in 2010 published by Bharati in the Asian Pacific Journal of Tropical medicine (April 2010, 322-327) a very high prevalence of underweight was reported in South 24 Parganas. More underweight children were seen in rural areas among Muslim families with illiterate parents and low living conditions. This characteristics like parents' educational status and standard of living show significant effect on children's weight.

We assessed growth abnormalities, measuring and weighing all children in a standardised fashion, using the following criteria:

- Underweight = weight for age at or under the third percentile of the reference population (WHO growth curves), only children up to 10 years old. This is an indicator of malnutrition or weight loss because of disease.
- Wasting = weight for height at or under the third percentile of the reference population (WHO growth curves), only children up to 120 cm in height. This is an indicator of acute malnutrition.
- Stunting = height for age at or under the third percentile of the reference population, (WHO growth curves), only children up to 19 years of age. This is an indicator of chronic malnutrition.

It should be noted that reference data were only available for certain heights, weights and ages (as specified above), leading to the following general prevalence of growth abnormalities in the communities we visited:

Table 5: Prevalence of weight/age at or under P3 (underweight) per geographical location by age and gender

	Total		**Bhagabatipur**		**Jaynagar**		**Raghunathpur**	
	1068		**Total= 324**		**Total= 337**		**Total= 407**	
	N	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Underweight	338	32%	94	29%	99	29%	145	36%
No underweight	722	68%	225	71%	237	71%	260	64%
Unknown*	8	1%	5	2%	1	0%	2	0%
Underweight children per age								
<=1 year	2		0		0		2	
>1 en <5 years	103	29%	36	30%	27	23%	40	33%
<5 years	105	29%	36	30%	27	23%	42	34%
>=5 en <=10 years	233	33%	58	29%	72	33%	103	37%
>10 years	0		0		0		0	!
Underweight children per gender								
Boy	163	30%	47	27%	39	25%	77	36%
Girl	175	34%	47	32%	60	33%	68	36%

* so not included in the %.

Table 6: Prevalence of height/age at or under P3 (stunting) per geographical location by age and gender

	Total		**Bhagabatipur**		**Jaynagar**		**Raghunathpur**	
	1068		**Total= 324**		**Total= 337**		**Total= 407**	
	N	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Stunting	208	20%	60	19%	54	16%	94	23%
No stunting	853	80%	264	81%	282	84%	307	77%
Unknown*	7	1%	0	0%	1	0%	6	1%
Stunting children per age								
<=1 year	0	0%	0	0	0	0	0	0%
>1 en <5 years	88	25%	27	22%	17	15%	44	37%
<5 years	88	25%	27	22%	17	15%	44	37%
>=5 en <=10 years	119	17%	32	16%	37	17%	50	18%
>10 years	1	25%	1	33%	0	0	0	0%
Stunting children per gender								
Boy	111	20%	36	21%	29	19%	46	21%
Girl	97	19%	24	16%	25	14%	48	26%

* so not included in the %.

Table 7: Prevalence of weight/height at or under P3 (wasting)per geographical of location by age and gender

	Total		Bhagabatipur		Jaynagar		Raghunathpur	
	1068		Total= 324		Total= 337		Total= 407	
	N	%	n	%	n	%	n	%
Wasting	170	19%	47	18%	60	22%	63	19%
No wasting	696	80%	213	81%	216	78%	267	81%
Unknown*	202	19%	64	20%	61	18%	77	19%
Wasting children per age								
<=1 year	1		0		0		1	
>1 en <5 years	34	9%	12	10%	15	13%	7	6%
<5 years	35	10%	12	10%	15	13%	8	7%
>=5 en <=10 years	135	24%	35	18%	45	28%	55	26%
>10 years	0		0	!	0		0	
Wasting children per gender								
Boy	87	18%	23	13%	24	20%	40	22%
Girl	83	19%	24	16%	36	23%	23	16%

* so not included in the %.

The checked children showed significant levels of malnutrition, with 50% suffering from anaemia (see Tabel 8), and were enrolled in an iron and/or multivitamin program.
We treated all children with growth abnormalities with multivitamines for 3 months, and spread the knowledge to the care takers about the necessity of fruit and green vegetables in their child's diets. Advices were customized to the availability and costs of local fruits and green leaves rich in Vitamin A and C.

Based on the information we received from the teachers on the dietary habits of the villagers and their children we got an impression of their daily diet. The main intake is parboiled rice, vegetables and legumes in broth,once a week chicken or fish, twice a week yoghurt or milk, once a week an egg, 1 to 3 times a week fruit, and sometimes a snack such as biscuits or chocolate.

Reflecting on the eating habits we conclude that the children consume small and thus insufficient amounts of dairy. As a large amount of Indians are lactose intolerant, fermented dairy products such as yoghurt are easier to digest and are a good alternative for young indian children. The children also eat very small amounts of animal products and together with the low amount of dairy products have a high risk of lack of protein and vitamin D.

Nutritional advice concerning energy and protein intake was shared with the teachers and parents.

During the medical check-ups, we paid special attention to issues of hygiene and nutritional advice. We emphasised hand washing, vitamin C, fruit and dark green vegetable intake.

2: Anaemia (50 %)

It is estimated that 47% of preschool children are anaemic globally and around 50-60 % of anaemia cases are due to iron deficiency (The Lancet 2008, 371:243-260). In some poor developing countries, the prevalence of anaemia is over 60%. The extent to which iron deficiency may effect children's development has major implications both for the individual and national development. Iron deficiency is associated with many psychosocial and economic disadvantages that can affect child development. There is evidence of changes to brain function in infants with iron deficiency anaemia. Children with iron deficiency anaemia generally come from poor socioeconomic backgrounds, which could account for some or all deficits.

The prevalence of anaemia in Bhagabatipur checked was high (50 %). The anaemia is largely attributable to poor dietary quality (diets low in key nutrients) and disease/worm loads.

In West Bengal there is no national policy to provide iron supplements to pregnant women and young children up to 5 years of age. 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 integral interventions, addresses the various factors that play a significant role in producing anaemia in a given community. In addition to iron deficiency, other nutritional deficiencies, infectious diseases such as worm infections, and other chronic infections, particularly tuberculosis, play a significant role.

Table 8: Prevalence of anaemia per geographical location by age and gender

	Total		**Bhagabatipur**		**Jaynagar**		**Raghunathpur**	
	1068		**Total= 324**		**Total= 337**		**Total= 407**	
	N	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Anaemia	530	50%	158	49%	178	53%	194	48%
No anaemia	527	49%	165	51%	153	45%	209	51%
Unknown	11	1%	1	0%	6	2%	4	1%
Hb <5,0 mmol	4	0%	0	0%	4	1%	0	0%
Anaemia per age								
<=1 year	2	50%	0		0		2	50%
>1 en <5 years	167	46%	53	43%	54	46%	60	50%
<5 years	169	46%	53	43%	54	46%	62	50%
>=5 en <=10 years	357	51%	102	51%	124	57%	131	47%
>10 years	4	80%	3	100%	0	!	1	50%
Anaemia per gender								
Boy	270	49%	84	48%	83	54%	103	47%
Girl	260	50%	74	50%	95	52%	91	48%

We treated the children with anaemia and no infection or growth abnormality with iron supplements for three months. Mild anaemia was mostly treated with multivitamins for 3 months, as micronutrients play an important role in the control of anaemia. An increase in the consumption of iron, folate, vitamin B12 and vitamin C can lead to a decrease of anaemia. Only 4 children showed a haemoglobin level below 5.0 mmol/l and will need a recheck after 3 months.
To combat anaemia, vitamin C intake is important because vitamin C facilitates the uptake of iron in the gut (just as milk and tea counteracts it). The most powerful dietary strategy to improve iron absorption is to add fresh fruit (citrusfruit, guave fruit) or vegetables (tomatoes, green leaves) rich in vitamin C and animal foods to a meal.

If iron supplementation had no potentially adverse effects, then universal supplementation or fortification would be the obvious recommendation. However, in iron-replete children there is a consistent evidence of a detrimental effect of giving iron on certain morbidities (diarhoea and malaria) and on growth. Especially in infants adverse effects of iron are manifested by decreased growth. In well-nourished infants by reduced gain in length, in poor nourished infants by lower weight gain. The mechanism behind the decreased growth is not really known, but it may involve free radicals mediated effects of iron or an interaction with zinc absorption/homeostasis. It therefore seems that iron drops should not be given to iron-replete infants. Therefore, the benefits of supplementation have to be weighed against potential harm.

It is clear that children should be treated for iron deficiency anaemia and prevented from getting it. General improvements to children's diets and prompt treatment of infections would be the first step to prevention. All interventions to control pediatric iron deficiency should be integrated into larger national and global health programs for pregnant women and children, including health education, malaria prevention, and deworming.

In summary:
Children with iron deficiency anaemia are at risk of poor current and future motor and mental development and behavioural differences.
Iron supplemetation usually shows benefical effects on motor developement in children with iron deficiency anaemia under 3 years, but the effect on mental development is not clear. Iron supplementation shows benefical effects on cognitive function in children aged 3 years and older with iron deficiency anaemia. Safety issues can arise at the point of administration(dasage). Therapeutic supplementation is generally intensive, 1-3 mg /kg/day, but of limited duration and directed at correcting iron deficiency anaemia. Treating anaemia with multivitamin supplementation also leads to reduction of anemia in many cases.

3: Worm treatment (72 % prophylactic)

Tabel 9: Prevalence preventive anti-worm treatment in the last half-year per geographical location by age and gender

	Total		**Bhagabatipur**		**Jaynagar**		**Raghunathpur**	
	1068		**Total= 324**		**Total= 337**		**Total= 407**	
	N	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Anti-worm	304	28%	84	26%	106	31%	114	28%
No anti-worm	764	72%	240	74%	231	69%	293	72%
Anti-worm per age								
<=1 year	1		0		0		1	
>1 en <5 years	126	35%	37	30%	44	37%	45	37%
<5 years	127	35%	37	30%	44	37%	46	37%
>=5 en <=10 years	176	25%	46	23%	62	28%	68	24%

Of all the children we checked 28% had been given an anti-worm profylaxe within the last 6 months by the community health centre. 764 children were enrolled in MCC's deworming program on the spot.
In South 24 Parganas ascaris worm (roundworm) is probably the most prevalent worm, next to T. Trichura, hookworm, Ankylostoma and/or necator. In this region the local community health centre operates an official anti-worm program.
It's unclear how many children are effectively reached by this bi-annual program in the different schools. 28% of the children were already dewormed, some of them were still treated for active worm investation with 3 days 2 tablets of Mebendazol. Mothers told the MCC team about worms exiting from nose and mouth and teeth grinding at night, and worms they saw in the stool.
On the locations checked, the prevalence of serious worm infestations was moderately low.

A strong relationship exists between Ascaris Lumbricoides, or T. Trichura infection, and anaemia. We treated all the non-dewormed children prophylactically on the spot with one tablet of Mebendazol 100 mg. The second tablet will be give to them by Konica or Dhiraj in 6 months. MCC left the necessary anti-worm medication with Dr. Chandra for follow up of the deworming program.

On the spot health education was aimed at increasing awareness of worm transmission, the different problems caused by intestinal helminth and the importance of deworming every six months.

Ways of improving personal hygiene and sanitation through hand washing, nail trimming, wearing of shoes/boots and use of a latrine and clean water supplies were encouraged, with bearing the deplorable housing conditions of many families and the enviromental hazards in mind.
Although all members of a population can be infected by intestinal parasites, those who are at most risk and would benefit most from preventive interventions such as the deworming campaign are the pre-school and school children.

4: Respiratory problems

A very low percentage (only 5 children) of the 1068 children were seen with an acute bacterial respiratory infection (ARI) and treated with appropriate antimicrobials and home treatment advice. Possible explanation of this finding could be found in the mild temperature in the last months in 2014.
We saw more children with symptoms of viral bronchitis, wheezing and astma A depressed immune function due to malnutrition is expected to increase the incidence of several infectious diseases.

5: Cardiac problems

The MCC carousel also includes a cardiac examination. We referred one boy with a pathological murmur with suspected diagnosis ventricular septum defect to YMWS for investigating possible cardiac operation at the Kolkata heart centre. The pilot case will be mutually followed up by MCC and YMWS and possible intervention will be discussed concerning medical risks and financial support within the MCC-Nieuwendijk foundation.
Another boy with a pathological murmur was selected for possible heart surgery, but could not be followed up because of too much fear of operation by the (grand)parents.
Twenty children had fysiologic murmurs; one child with a suspected pathological murmur had an ECG done in Diamond Harbour Hospital on the same day, which showed no abnormalities.

6: Skin diseases (8%)

With respect to the skin diseases of the 84 children (8%), we saw 9 children with infected wounds, 12 children with fresh wounds, 1 child with erysipelas, 2 children with impetigo, 28 children with dermatomycosis, 15 children had ecxema, and the rest had dermatitis reactions due to insect bites. Some children were seen with hypo pigmentation, diagnosing either fungal disease or multi vitamin deficiency.
Antifungal cream (sometimes in combination with hydrocortison) was given for fungal infections (dermatomycosis) and hydrocortison cream was given for different forms of dermatitis. Infected wounds were treated with Fusidine creme, sometimes in combination with oral antibiotics.
19 children had scabies and were either treated with ivermectine tablets or permetrine lotion. Additional information on treatment of the clothes and the bed linen was given to the caregivers.

7: Ear/nose/throat problems

Seven children had an acute otitis media, 5 children had otitis media with effusion, 6 otitis externa, 5 had a tympanic perforation, for which we scheduled referrals to Diamond Harbour Hospital, 4 children had complaints of adenotonsilitis, 1 baby had difficulty drinking because of candida stomatitis and 2 children had clinical hearing impairment, and were also referred to an ENT specialist.

8: Eye problems

Some school children complained about dry and/or painful eyes. Xerophtalmia can be attributed to Vitamin A deficiency. The national Vitamin A program in India reaches about 85 to 90% of the children 6 to 59 months old twice yearly through a community strategy. Vitamin A deficiency affects 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 or intestinal absorption, or transport and metabolism are impaired as a result of conditions such as diarrhoea. The most important step in preventing Vitamin A deficiency is ensuring that children's diets include adequate amounts of carotene containing cereals, tubers, vegetables and fruits. We treated children with painful eyes with extra vitamin supplements.
Two children had vision problems and were happy to receive a pair of glasses on the spot, with wich they told us about their improved vision.

9: (Clinical) Vitamin deficit (10%) *(see also under 1: Growth abnormality and malnutrition)*

Of the checked children, 106 (10%) had clinically signs of vitamin deficit. The vitamin deficiency is mainly due to malnutrition and parasitosis. When children have adequate sources of multinutrients, they are better able to survive infections and develop their full potential.
Many of these children had complaints of pain in their knees and legs due to Vitamin D deficiency. They were given multivitamins for 3 months and dietary advice (more egg, dairy and vegetables).

10: Gastrointestinal problems (12%)

Three children had symptoms of dysenteria, with visible blood and mucus in their watery stool. They were treated with cotrimoxazol. MCC might consider to stock nalidixic acid in the future, due to the fact that West Bengal is an endemic area for bacillary dysentery with shigella multi resistant to a lot of antibiotics. Four children were treated with oral rehydration therapy due to gastroenteritis, and three children had chronic diarrea and were treated with metronidazole. Seven children were treated with metronidazole due to suspected giardia infection.

Many children (114; 11%) had complaints of constipation, from moderate to severe with even two children diagnosed with rectal prolapse.The constipation is most probable due to the high intake of white rice (very little fibres) and the relative low consumption of fruit. Strong attention should be paid to the amount of water (at least 1 liter a day) and the amount of fibre. Another factor could be the lack of fat in the children's diet. Advice to give an additional spoonful of coconut oil or ghee (clarified butter) a day was therefore given to the caretakers. As additional medication bisocodyl (Colax) can be advised and will be ordered by MCC for the next mission in stock.
The 7 children with urinary tract infections sometimes also had severe constipation, a well known risk factor for UWI. They were treated with cotrimoxazol for 7 days.

11: Dental (46%)

In general a very high caries prevalence was found: 25% of the children had caries dental problems and 18% severe caries with pain, often combined with secondary growth abnormalities. In total 459 out of 1068 (=46%)children were in need of additional dental care. As far as the children with more deplorable dental care are concerned, there is a high correlation with the intake of sweets and sugary beverages.
Clinically the doctors diagnosed 1abscess, some root remnants and caries profunda.

This MCC mission to Bhagabatipur did not include a dentist.
The 109 referrals (24% of the 459 dental cases) of the MCC doctors to local dentists were limited to the most severe cases: profound caries with severe toothaches and in need of extraction. We stressed the importance of proper dental hygiene and the banning of sugary products, beverages and fast food to the children, their caregivers and their teachers. The schools could make the location sugar free zones and set the example (*see also under VII/Recommendations)*.

On the check days, many volunteers helped with the health promotion activities teaching proper hand and dental hygiene to all children checked and giving out colourful toothbrushes as well as toothpaste to the children. A toothbrush song made hundreds of children smile while having health promotion. A special heartfelt thanks goes to Shanti for her creative and energizing health promotion activities.

V Education of teachers, caregivers and local helpers

One of the most important tasks of MCC is to encourage the continuation of health education of the teachers, parents and other caregivers of the village children. Based on WHO estimates, 25% of the global burden of disease is due to preventable environmental exposures, with the greatest burden to children in low-income and developing countries. During the week the mixed Dutch/English/Bengali speaking team shared knowledge about common diagnoses of frequent illnesses and treatments. We especially focused on anaemia and malnutrition, balanced diet, infections, parasites and worm infestations. Nutritious foods, deworming, iron and vitamin supplements, as well as hygiene should be key components of structural health promotion in local schools.
See also our recommendations (VII).

VI General conclusion and future medical needs

The MCC Kolkata mission 2014 was an explorative mission – the first time for MCC to visit this region. Mr. Shourabh Mukerjee considered the time ripe to make the first step from education to health in this area. The MCC mission formed the first medical intervention on this scale, implementing anti-worm programs, iron supplementation and multivitamin programs (which are very cost effective interventions according to the Copenhagen Consensus Papers 2004, 2008 and 2012).

The results above show the continous need for **preventive** medical help for the children in South 24 Parganas district in absence of a national school health program. Investing in **capacity building and knowledge transfer** about the circle of malnutrition, parasitosis and anaemia is essential and could be the first step to change the medical quality of life of thousands of village children.

This can be done/addressed by organizing **community workshops** and making sure that the national Vitamin A and deworming program has a **100 % outreach**.

For iron prevention strategies to be effective, **involvement** of all relevant sectors will be necessary. Education strategies communicating the benefits of adequate iron nutrition, the causes of anaemia and its preventive strategies, as well as effective supply mechanisms to attain fortified foods and iron supplementation, are crucial.

VII Specific recommendations

- **Preventing leading causes of disease: WORMS**

It is important to stress the importance of regular (6-monthly) deworming of all children above 2 years up to 14 year of age. The school headmaster/headmistress could have the responsibility to organise an structural anti-worm program for their school. The dewormed children will need a second anti-worm pill in 6 months from the first pill taken (meaning in August 2014). MCC has left the necessary medication behind this year.

- **Preventing leading cause of disease: UNHEALTHY NUTRITION**

- Good eating habits, with discouragement of fast food and sugary beverages with emphasis on nutritious food, fruits rich in iron and micronutrients.
- Strong attention should be paid to overall energy intake, fat, dairy products, fibre and water intake.
- Health promotion classes given by teachers for parents could be held within the school compound, maybe extended by a health education program for pregnant mothers with special attention to nutritional requirements, breast feeding and good motherhood.
- On the school compound development of local (and perhaps on site) products (e.g.kitchen gardens) would be recommended.
- The schools could make the location sugar free zones and set the example.

- **Preventing leading causes of disease: CARIES**

Special emphasis needs to be put on general and dental health promotion. Teachers could get started with family classes directed to personal hygiene in every day life, the importance of hand washing with soap and dental care.

- **Influencing health-related behaviours**

Development of health awareness (e.g. with music and dance) addressing the villagers knowledge, beliefs, skills, attitudes and values.

- **Workshops**

Besides worskhops to teachers/parents and/or pregnant mothers on worms/hygiene, nutrition/multivitamins and hygiene (handwashing, toothbrushing), we could also imagine workshops on:

- Scabies (what is it, how to prevent and/or treat it?)
- Culture-related workshops (or movies), as for example on arranged marriages, violence within families/child protection.

- **Building networks and effective partnerships**

Whether inside the distric South 24 Parganas or within the neighbourhood of Bhagabatipur, the social and health problems the villagers face exist within complicated ecosystems of individual actors and institutions, representing government, corporate and non-profit sectors. This calls for dynamic and adaptive responses and a strong need to work together and build efficient and effective networks.
During our stay in Diamond Harbour, MCC was able to facilitate the first building blocks of a medical bridge between first line medical care given by Dr. Chandra, and second line medical care by the pediatric department in the Hospital of Diamond Harbour through the organisation of YMWS headed by Shourabh Mukherji.
These building blocks should be worked on further (see under VIII).

In the partnership between YMCS and FEMI, we would recommend a **multipurpose nurse** to facilitate and monitor the work that needs to be done after a medical check, in the sense of setting up feeding programs, providing content for the workshops, and being point of contact with the local health centres and hospital, all in collaboration with Dr. Chandra.

VIII General agreements

In our evaluation meeting with YMWS on February 10th, we came to the following mutual agreements:

- In a week's medical check, the optimal number of children lies around 1000, to keep a balance between individual attention/quality and quantity. During the checks, MCC will reserve time for workshops for teachers on topics like malnutrition and child diseases.
- Suggestions were made to allow a certain amount of younger children (0-3 year) from the villages around the schools, noting the fact that this is the most vulnerable target group.
- In the coming year(s), it is important to see the same schools and children, in order to be able to make progression in health (awareness) of these communities/this region.
- **YMWS** will:
  - Pick up the recommendation to start several workshop (*see under VII*).
  - Take on the responsibility for next year's mission to coordinate the medication by a trustful wholesaler.
  - Take on the responsibility to provide the 6-month anti-worm tablets to the children checked (August 2014).
  - Deliver the 700 tootbrushes left by MCC to the schools.
  - Coordinate the donated money for about 25 new school uniforms at the Raghunathpur school.
  - Provide background information on the living conditions of the children (to be) checked.
- **Dr. Chandra**:
  - Agreed on regular check ups every three months, together with two or three doctor colleagues. He will also coordinate MCC follow ups as discussed on location and will be MCC's main medical point of contact. For the direct follow up, MCC has a financial reserve of 1000 euro.
  - Will work on the idea of a health card, and also make contact with his dentists in the region to see what's possible (e.g. a dentist on the team, a dental workshop).
- **MCC** will:
  - Take YMWS' suggestion for a second MCC team for different schools in the region into consideration.
  - Prepare a workshop specifically for midwives.
  - Prepare a workshop specifically for expecting mothers. This workshop will focus on two stages of pregnancy (womb/breast feeding).
  - Mail the reference lists of haemoglobine and growth charts to Dr. Chandra.
- Concerning the **YMWS/rural roots - Diamond Harbour Hospital – FEMI – MCC** medical bridge building:
  - **Shourabh Mukherji** will discuss logistics, operational issues and finances with chief Dr Annur Hossein in the next weeks and will share this, after an agreement, also with the five child specialists Dr. Mandal, Dr. Saha, Dr. Maity, Dr. Barik and Dr. Baur. As Diamond Harbour is a general government hospital, all general operations can be done on location. For more complex cases patients need to be referred to Kolkata. Estimated costs of regular diagnostics are 200 INR for an Xray,150 INR for an ECG, 500-700 INR for an ultrasound, 700 INR for an EEG, and 500 INR for thyroid function lab. All other investigations can be done by private office.
  - Once the above agreement is achieved by Mr. Mukherji and chief Dr. Hossein, **Minke Huibers of MCC** will be contacted by Dr. Chandra, who will refer the children with phimosis, inguinal hernia and the patient with thyroid testing to the pediatric department (the medical history of these cases was already shared with Dr. Maity).

IX Last words

This explorative mission was for everyone a big learning experience and we can conclude that it was a mission above any expectation.

The MCC team was very happy with the cooperation with the local organiser YMWS, and the active, direct support and enthusiasm of the local volunteers who gave MCC the opportunity to work in West Bengal and to facilitate all aspects of the medical campaign.

Special thanks go to Shourabh Mukherji for taking time out from his hectic schedule, his warm welcome and cultural introduction, together with a wonderful lunch on our arrival in Kolkata, and for the inspirational feedback session after the checks, leading to mutual agreements for the future.
We also want to express our heartfelt personal thanks to Konica, Sangeeta, Shazia, Dhiraj and Dr. Chandra, as well as to the (head)teachers, for their immense contribution, active support and encouragement. We hope the teachers and volunteers will continue to inspire their communities in the same way they inspired us as they play a vital role in spreading awareness and knowledge about child health and hygiene.

And last but not least, we would like to thank the children and their caregivers who came to the check for their friendly presence and their expressed trust in our work. We are grateful that the teachers and the villagers did not perceive themselves as recipients of charity, but as partners in a mutual progress.

Our experiences, the overall organisation and support as well as the medical results of the checks form a very good basis for MCC to revisit the three locations in Bhagabatipur also the coming years*.

On behalf of the MCC Kolkata 2014 team:

Ines von Rosenstiel
Miguette Jadoul

March 2014

*** Post scriptum: On the 18th of February 2014, the MCC board decided to continue the mutual collaboration with YMWS and FEMI in Bhagabatipur for the next years.**