Medical Report Bangladesh BVDO 2013

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Introduction:
From 24 until 31 March 2013 a team of Medical Checks for Children (MCC) visited the region of Chharbikpar, a small village in the Barisal Division of Bangladesh (Asia).
The MCC team checked and treated 794 children, aged 9 years and below, free of cost. The medical camp was organized for seven days starting the 24th of March, at five different locations in the Barisal Division.
The MCC team consisted of ten members from The Netherlands: Bram Felius (medical-end-responsible, pediatrician), Dini van der Worm (organization-end-responsible, nurse and consultant), Marlieke Cools (medical docter), Adri van Mastrigt (family doctor), Jan Staal (psychiatrist), Gabrielle Rutten (general doctor and consultant), Edith van Bremen (nurse), Taco Claas (IBJ), Liesbeth Lanser (nurse), and Roos Tacken (psychotherapist).

The medical checks were organized for the fifth time in close cooperation with the Barisal Village Development Organisation (BVDO). BVDO is a non-governmental organisation (NGO), founded in 1997 by Cecilia Parul Mondal. BVDO is located in Chhabikharpar, a small village in the Barisal Division of Bangladesh. BVDO is working with the aim of improving the socio-economic condition of the poor and the underprivileged, with main focus on the development of the poor women and children in rural and urban areas. BVDO has its working area in 16 villages of four municipalities and has initiated projects with regard to safe water and sanitation, education (e.g. building schools), micro-credits, handicraft, health programs, agriculture and pre-school programs. More information: http://www.stichtingsako.nl/index.php/nl/projecten/bangladesh
The working area of BVDO in the south of Bangladesh is a poor area: approximately 50% of the population lives in poverty. Main income source is agriculture, however, due to annual floods, there is only one rice harvest per year. Additionally, hurricanes strike the area on a regularly basis (see for country and health statistics Bangladesh Appendix A).

The cooperation of BVDO existed out of the following (amongst others):
- Selection of translators/ health motivators.
- Providing board and lodging of all MCC team members.
- Arranging transport from Dhaka to Chhabikharpar and transport to the check locations (boat and vans).
- Selection of the check locations in close cooperation with the team leaders.
- Announcement of the medical camp in the villages.
- Making copies of all necessary papers.
- Giving all kinds of support to the MCC team during the medical camp.

Technical equipment and some of the supplies were brought from Europe by MCC team members. Medication was ordered by Bram Felius, medical end responsible, with the support of Mr. Linus Mondal, BVDO.
Our special thanks go to Cecilia Parul Mondal and Linus Mondal, their hospitality, support and enthusiasm gave MCC the opportunity to work in the medical camp and examine and treat children in the rural area of Bangladesh.
We enjoyed working together with all helpers and translators, and we hope they 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 health and its importance for children in reaching their developmental potential.
We are grateful to all the parents, care takers and community people for bringing the children and helping to conduct the program. We are happy we got the opportunity to work with and to learn from all volunteers, translators and other supporting members who have helped directly or indirectly, despite their own obligations.

Bangladesh
Bangladesh, officially the People's Republic of Banglades is a country in South Asia. It is bordered by India on all sides except for a small border with Burma (Myanmar) to the far southeast and by the Bay of Bengal to the south. Together with the Indian state of West Bengal, it makes up the ethno-linguistic region of Bengal. The name *Bangladesh* means "Country of Bengal" in the official Bengali language.
The borders of present-day Bangladesh were established with the partition of Bengal and India in 1947, when the region became the eastern wing of the newly formed Pakistan. However, it was separated from the western wing by 1,600 km (994 mi) of Indian territory. Political and linguistic discrimination as well as economic neglect led to popular agitations against West Pakistan, which led to the war for independence in 1971 and the establishment of Bangladesh. After independence, the new state endured famines, natural disasters and widespread poverty, as well as political turmoil and military coups. The restoration of democracy in 1991 has been followed by relative calm and economic progress.
Bangladesh is the seventh most populous country and is among the most densely populated countries in the world with a high poverty rate. However, per-capita (inflation-adjusted) GDP has more than doubled since 1975, and the poverty rate has fallen by 20% since the early 1990s. The country is listed among the "Next Eleven" economies. Dhaka, the capital, and other urban centers have been the driving force behind this growth.
Geographically, the country straddles the fertile Ganges-Brahmaputra Delta and is subject to annual monsoon floods and cyclones. It has the longest unbroken sea beach in the world in the Cox's Bazaar. Bangladesh is a parliamentary democracy with an elected parliament and a member of the Commonwealth of Nations, the OIC, SAARC, BIMSTEC, and the D-8. As the World Bank notes in its July 2005 Country Brief, the country has made significant progress in human development in the areas of literacy, gender parity in schooling and reduction of population growth. However, Bangladesh continues to face a number of major challenges, including widespread political and bureaucratic corruption, economic competition relative to the world, serious overpopulation, widespread poverty and a vulnerability to natural disasters.
In 2013, Bangladesh was estimated to be one of the ten most highly populated countries with an estimated population of about 160 million. This makes the population density of about 1075 people per sq km. Most of the population is young with about 50 % under the age of 25, with only about 5% over the age of 65 (life expectancy is 70 years). Bangladesh's population is predominantly rural with only 28% of urban population.
Bengalis make up the vast majority (98%) of Bangladesh's population. They are descendants from immigrant Indo-Aryans who came from the west and intermarried with various Bengal groups. The minority in Bangladesh is comprised of several groups, the Chakma and Mogh (Mongoloid people who live in the Chittagong Hill Tracts District), the Santal (migrants from India) and the Biharis (Muslims who came from India).

Table 1: Peaple and society of Bangladesh

- **Nationality:**
- **noun:** Bangladeshi(s) **adjective:** Bangladeshi
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- **Ethnic groups:**
- Bengali 98%, other 2% (includes tribal groups, non-Bengali Muslims) (1998)
- **Languages:**
- Bangla (official, also known as Bengali), English
- **Religions:**
- Muslim 89.5%, Hindu 9.6%, other 0.9% (2004)
- **Population:**
- 166,280,712 (July 2014 est.) **country comparison to the world:** 9
- **Age structure:**
- **0-14 years:** 32.3% (male 27,268,560/female 26,468,883)
- **15-24 years:** 18.8% (male 14,637,526/female 16,630,766)
- **25-54 years:** 38% (male 29,853,531/female 33,266,733)
- **55-64 years:** 5.9% (male 4,964,130/female 4,870,447)
- **65 years and over:** 5% (male 4,082,544/female 4,237,592) (2014 est.)
- **Median age:**
- **total:** 24.3 years **male:** 23.8 years **female:** 24.8 years (2014 est.)
- **Population growth rate:**
- 1.6% (2014 est.)
- **Birth rate:**
- 21.61 births/1,000 population (2014 est.)
- **Death rate:**
- 5.64 deaths/1,000 population (2014 est.)
- **Net migration rate:**
- -0.02 migrant(s)/1,000 population (2014 est.)
- **Urbanization:**
- **urban population:** 28.4% of total population (2011)
- **rate of urbanization:** 2.96% annual rate of change (2010-15 est.)
- **Major urban areas – population:**
- DHAKA (capital) 15.391 million;
- Chittagong 5.239 million;
- Khulna 1.781 million;
- Rajshahi 932,000 (2011)
- **Sex ratio:**
- **at birth:** 1.04 male(s)/female
- **0-14 years:** 1.03 male(s)/female
- **15-24 years:** 0.88 male(s)/female
- **25-54 years:** 0.9 male(s)/female
- **55-64 years:** 0.95 male(s)/female
- **65 years and over:** 0.96 male(s)/female
- **total population:** 0.95 male(s)/female (2014 est.)
- **Mother's mean age at first birth:**
- 18.1
- **Maternal mortality rate:**
- 240 deaths/100,000 live births (2010)
- **Infant mortality rate:**
- **total:** 45.67 deaths/1,000 live births
- **Life expectancy at birth:**
- **total population:** 70.65 years
- **Total fertility rate:**
- 2.45 children born/woman (2014 est.)

- **Contraceptive prevalence rate:**
- 61.2% (2011/12)
- **Health expenditures:**
- 3.7% of GDP (2011)
- **Physicians density:**
- 0.36 physicians/1,000 population (2011)
- **Hospital bed density:**
- 0.6 beds/1,000 population (2011)
- **Drinking water source:**
- **improved:** urban: 85.8% of population rural: 84.4% of population total: 84.8% of population **unimprove** of population (2012 est.)
- **Sanitation facility access:**
- **improved:** urban: 55.2% of population rural: 57.8% of population total: 57% of population **unimproved** population (2012 est.)
- **HIV/AIDS – adult prevalence rate:**
- 0.1% (2012 est.)
- **HIV/AIDS – people living with HIV/AIDS:**
- 8,000 (2012 est.)
- **HIV/AIDS – deaths:**
- 400 (2012 est.)
- **Major infectious diseases:**
- **degree of risk:** high **food or waterborne diseases:**
- bacterial and protozoal diarrhea, hepatitis A and E, and typhoid fever
- **vectorborne diseases:** dengue fever and malaria are high risks in some locations
- **water contact disease:** leptospirosis
- **animal contact disease:** rabies)
- **Obesity – adult prevalence rate:**
- 1.1% (2008)
- **Children under the age of 5 years underweight:**
- 36.8% (2011) **country comparison to the world:** 5
- **Education expenditures:**
- 2.2% of GDP (2009) **country comparison to the world:** 161
- **Literacy:**
- **definition:** age 15 and over can read and write
- **total population:** 57.7% **male:** 62% **female:** 53.4% (2011 est.)
- **School life expectancy (primary to tertiary education):**
- **total:** 10 years **male:** 10 years **female:** 10 years (2011)
- **Child labor – children ages 5-14:**
- **total number:** 4,485,497 **percentage:** 13 % (2006 est.)
- **Unemployment, youth ages 15-24:**
- **total:** 9.3% **country comparison to the world:** 114 **male:** 8% **female:** 13.6% (2005)

https://www.cia.gov/library/publications/the-world-factbook/geos/bg.html

Medical Checks for Children on location:

The medical checks of the 794 children were performed in seven days at fiver different locations. During the free of costs medical checks, the children were checked following the MCC carrousel:

1: Registration of the child
2: Measuring height and weight (saturation occasionally)
3: Blood test (haemoglobin) (and urine check occasionally)
4: Physical examination

5: Giving medication (pharmacy)

6: Education on tooth brushing and a tooth brush, tooth paste and soap was given to each child. At each station, mainly at physical examination and pharmacy, education was given to the children and their care takers on good nutrition and hygiene.

MCC checked children at Sonirpar, Bisharkandi, Toru Bazar, Kurulia, Madra and near BVDO office at Chabikapar Computer Center. We focused on young children, under the age of 5 years, up of 8 years, although some were slightly older. Boys and girls were equally represented.

Table 2: Number of checked children

≤ 1 year	13,00	1,64%
> 1 year - ≤ 5 years	526,00	66,25%
> 5 years - ≤ 10 years	255,00	32,12%
> 10 years	0,00	0,00%
unknown	0,00	0,00%
total	**794,00**	

Table 3: number of girls and boys

Sex	**number**	**%**
unknown	0,00	0,00%
boys	394,00	49,75%
girls	398,00	50,25%
total	792,00	

Table 4: Growth abnormalities

Growth abnormalities	**number**	**%**
underweight	274	34,51%
no underweight	520	65,49%
stunting	236	29,76%
no stunting	555	69,99%
not possible	2	0,25%
total	793	
wasting	124	15,62%
no wasting	627	78,97%
not possible	43	5,42%
total	794	

Diagnosis and categories of ailments:

Except of the children with a growth disturbance and the 396 (49,8%) children with anaemia, 468 other diseases were diagnosed.

Table 5: diseases diagnosed

	Anaemia	**number**	%
	anaemia	396	49,87%
	no anaemia	391	49,24%
	unknown	4	
	total	791	
	Hb < 5	11	1,39%
	General	**number**	%
2	AIDS	3	0,38%
	RESP	**number**	%
10	Pneumonia (clinical diagnosis)	23	2,90%

11	Pneumonia (confirmed by X-thorax)	1	0,13%
14	Bronchitis	11	1,39%
15	BHR/Asthma	4	0,50%
19	Other…	4	0,50%
	GI	**number**	%
20	Giardia (suspected)	1	0,13%
21	Dysenteria	1	0,13%
25	Obstipation	26	3,27%
26	Active worm infection	13	1,64%
	ENT	**number**	%
30	Otitis media acuta / n.o.s.	12	1,51%
31	Otitis media with effusion	5	0,63%
32	Otitis externa	3	0,38%
33	Tympanic perforation	2	0,25%
35	Adenotonsillitis / tonsillitis	6	0,76%
38	Hearing impairment	2	0,25%
39	Other…	10	1,26%
	DENTAL	**number**	%
40	Caries n.o.s.	195	24,56%
45	Caries with pain	70	8,82%
49	Other…	1	0,13%
	DERMATO	**number**	%
50	Wounds n.o.s.	1	0,13%
51	Eczema n.o.s.	8	1,01%
52	Dermatomycosis	5	0,63%
53	Impetigo / furunculosis	1	0,13%
54	Lice	14	1,76%
55	Scabies	26	3,27%
57	Wounds infected	1	0,13%
58	Burn wound (fresh)	1	0,13%
59	Other…	4	0,50%
	NEUROMUSC	number	%
60	Psychomotoric retardation	1	0,13%
63	Epilepsy	2	0,25%
64	Spina bifida	0	0,00%
65	Migraine / headache	1	0,13%
69	Other…	1	0,13%
	CARDIO	number	%
70	Physiological murmur	2	0,25%
71	Pathological murmur (suspected)	1	0,13%
73	Other…	1	0,13%
	EYE	number	%
75	Strabismus	1	0,13%
77	Amblyopia	2	0,25%
79	Other…	1	0,13%
	ENDOCRIN	number	%
80	Thyroid dysfunction (suspected)	1	0,13%
	GYN	number	%
89	Other…	1	0,13%
	UROGEN	number	%
92	Inguinal hernia	1	0,13%
93	Urinary tract infection	7	0,88%
95	Other…	4	0,50%
	NEFRO	number	%
96	Chronic kidney pathology (suspected)	0	0,00%
	SKELETAL	number	%
104	Fracture (new)	1	0,13%

106	Other…	1	0,13%

Table 6: Diseases categories prevalence among all children in 2010, 2011, 2012 and 2013

	2010		2011		2012		2013	
	1103 children		1061 children		914 children			
Underweight	436	40%	400	38%	415	45%	274	34,51%
Stunting	404	37%	433	41%	326	36%	236	29,76%
Wasting	209	20%	148	14%	227	25%	124	15,62%
Anaemia	557	51%	543	51%	424	46%	424	46%
Active worm infection	228	21%	111	10%	58	6%	13	1,64%
Pneumonia	57	5%	39	4%	22	2%	24	3,03%
HIV/AIDS	1	<1%	3	<1%	-	-	3	<1%
Tuberculosis	1	<1%	-	-	1	0%	-	-
Gastro-intestinal	20	2%	31	3%	62	7%	28	3,53%
Pathological cardiac murmurs	10	1%	7	1%	10	1%	2	<1%
Ear-nose-throat	79	7%	28	3%	17	2%	40	5,04%
Skin diseases	137	12%	113	11%	68	7%	61	7,69%
Eye problems	12	1%	11	1%	8	1%	4	<1%
Urinary tract infection	12	1%	11	1%	14	2%	7	<1%
Neuromuscular	13	1%	10	1%	5	<1%	5	<1%
Painful caries	60	6%	141	13%	117	13%	70	8,82%

Table 7: Treatment

TREATMENT

	IRON	**number**	%
1	Ferro	113	14,23%
	Multivitamin	**number**	%
2	Multivitamins	456	57,43%
	Antiworm treatment	**number**	%
3	Preventive antiworm treatment	119	14,99%
6	Acute worm treatment	11	1,39%
	Ivermectin	**number**	%
5	Ivermectine (scabies treatment)	14	1,76%
	Amoxicillin	**number**	%
10	Amoxicilline	27	3,40%
	Augmentin	**number**	%
11	Augmentin	13	1,64%
	Claritromycin	**number**	%
12	Claritromycine/erythromycine	11	1,39%
	Paracetamol	**number**	%
15	Paracetamol	2	0,25%
	Metronidazol	**number**	%
20	Metronidazol	1	0,13%
	Co-trimoxazol	**number**	%
21	Co-trimoxazol	15	1,89%
	Eardrops	**number**	%
32	Eardrops	2	0,25%
	Mupirocin = Bactroban	**number**	%
50	Mupirocine = Bactroban	7	0,88%
	Hydrocortison cream	**number**	%

51	Hydrocortison cream	20	2,52%
	Dactarin cream	**number**	%
52	Dactarin cream	3	0,38%
	Dactacort cream	**number**	%
53	Dactacort cream	6	0,76%
	Fusidin cream	**number**	%
57	Fusidin cream	1	0,13%
	Sudocream	**number**	%
58	Flammazine	1	0,13%
	Mother iron	**number**	%
88	Mother iron	23	2,90%

Table 8: Total treatment of 1061 children in 2011, 914 children in 2012 and 794 in 2013

	Treatment	**2011**		**2012**		**2013**	
		N	%	**N**	%	**N**	%
1	Iron	208	21%	205	22%	113	14,23%
88	Mother iron	37	3.5%	9	1%	23	2,90%
2	Multivitamins	586	59%	475	52%	456	57,43%
3	Preventive antiworm treatment	551	52%	255	28%	119	14,99%
6	Acute worm treatment	111	10%	59	6%	11	1,39%
5	Ivermectine (scabies treatment)	16	2%	3	0%	14	1,76%
10	Amoxicilline	45	5%	39	4%	27	3,40%
11	Augmentin	10	1%	3	0%	13	1,64%
12	Claritromycine/erythromycine	18	2%	5	1%	11	1,39%
20	Metronidazol	0	0 %	0	0%	1	0,13%
21	Co-trimoxazol	1	≤1%	4	0%	15	1,89%
22	ORS	0	0%	1	0%	0	0%
32	Eardrops	7	0,7%	5	1%	2	0,25%
51	Hydrocortison cream	14	1.4%	10	1%	20	2,52%
52	Dactarin cream	17	1.7%	14	2%	3	0,38%
53	Dactacort cream	6	0.6%	10	1%	6	0,76%
57	Fusidin cream	33	3.1%	3	0%	1	0,13%
58	Flammazine	0	0%	3	0%	1	0,13%
76	Eyedrops	8	0,8%	2	0%	0	0%

Table 9: Follow-up

	DENTIST	**number**	%
1	Dentist	23	2,90%
	Specialist	**number**	%
2	Specialist in hospital	5	0,63%
	Revisit	**number**	%
3	Revisit	2	0,25%
	X-thorax	**number**	%
4	X-thorax	1	0,13%
	ECG	**number**	%
5	ECG	0	0,00%
	Urine & Kidney	**number**	%
6	Urine + Kidney function	0	0,00%
	Bloodtest 3 months	**number**	%
7	Bloodtest after 3 months	8	1,01%
	Intern. Foundation	**number**	%
8	International organisation	0	0,00%
	Other	**number**	%
9	Other…	4	0,50%

1: Growth abnormality and malnutrition:
(underweight: 271 (34,5%), stunting: 236 (29,8%), wasting: 124 (15,6%))
The World Health Statistics of Bangladesh show a prevalence of 36.6% of underweight in children less than five years of age a reflecting chronic malnutrition. In Bangladesh approximately 30% of the people lives below the "food poverty line".
A lot of the families live on just one or two meals a day and the typical household's diet is very low in diversity of food products. A recent report of the World Bank shows that stunting in general is associated with as much as eleven points decrease in Intelligence Quotient (IQ).
Percentages of growth retardation are correlated with poverty, malnutrition, living conditions, hygiene and the prevalence of chronic diseases.
According to UNCCA the two major causes of malnutrition are poor feeding practices and inadequate childcare. Adequate food intake and education programs addressing nutrious food need to be provided.
Malnutrition is thought to account for one third of all deaths of children under five years of age (UN Millennium Developmental Goals). Therefore, we assessed growth abnormalities, measuring and weighing all children in a standardized 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.

Incidence of underweight, stunting and wasting in 2013 was decreased compared to the incidence in 2012, Estimation of age is sometimes troublesome without official documents stating date of birth and children or even parents not knowing children's age, making the stunting data less reliable than wasting data.
The difference in underweight, stunting ans wasting might be partially explained by seasonal influences. In 2013 we went reletively late, when the wether was warmer, and food was more availible.

Table 10: Indices for growth abnormalities and malnutrition for all children in 2010, 2011, 2012 and 2013

	2010 1103 children		**2011** 1061 children		**2012** 914 children		**2013** 794 children	
	N	*%*	*N*	*%*	*N*	*%*	*N*	*%*
Underweight (= weight for age)	436	**40%**	400	**38%**	415	**45%**	274	**34,51%**
No underweight	661	60%	661	62%	498	55%	520	65,49%
Not possible to assess	6	1%	0	0%	1	0%	0	0%
Stunting (= height for age)	404	**37%**	433	**41%**	326	**36%**	236	**29,76%**
No stunting	690	63%	628	59%	586	64%	555	69,99%
Not possible to assess	9	1%	1	0%	2	0%	2	0,25%
Wasting (= weight for height)	209	**20%**	148	**14%**	227	**26%**	124	**15,62%**
No wasting	842	80%	876	86%	660	74%	627	78,97%
Not possible to assess	52	5%	37	4%	27	3%	43	5,42%

Multivitamins were given to 456 (57,4%) children with stunting/malnutrition/ clinical signs for vitamin deficit (in 2011 to 586 children; 59%, in 2012 to 475 children: 52%). The relatively high percentage of multivitamins compared to the decreased growth abnormalities, can be explaind by the relatively low figures for iron. Multivitamins were prescribed for moderate anemia also.

During the medical check-ups, we gave all children and their guardians hygiene and nutritional advise, with emphasis on hand-washing, vitamin C and vegetable intake, so their children may grow healthy and strong. We noticed the policy of a lot of mothers to feed their babies up to the age of one year or even more, almost only with breast milk. For babies, we advised exclusive breastfeeding up to six months and then start with the introduction of normal food. For babies without a mother or a mother without enough milk we discussed the possibilities of breastfeeding by another mother.

2: Anaemia: (424 children, 46%)
Anaemia is the most prevalent micronutrient disorder. In Bangladesh no national policy has been implemented to provide iron supplements to pregnant women or young children. And if so, only 27.2% of the pregnant women are attended by trained personnel (source WHO).
In the Barisal area, a midwife makes monthly visits to the village, in order to advise pregnant women.
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. We know a lot of families live on just one or two meals a day and the typical diet is very low in diversity of food products, fat and sources of vitamin C. Rice and some green leafy vegetables dominate the menu on a daily basis. Part is due to poverty and part is due to lack of knowledge.
In addition to iron deficiency, infectious diseases are especially important in causing anaemia.

In 2009 44% of all children had anaemia. In 2010 we noticed a slight increase of anaemia in the overall numbers (51%). In 2010 and 2011 in 51% children anaemia was diagnosed and 2012 we noticed a slight decrease of anaemic children (46%). In 2013 this no futher decrease was noted (46%).

Because of emotional problems, we did not take blood from 4 children. These children were treated with multivitamins, as if they were anaemic.
In 11 (1,4%) children the haemoglobin level was less than 5.0 mmol/l. These children were referred to the nearest hospital for further diagnostic procedures. We are not informed about the test results.

As pointed out in the paragraph of growth abnormalities, we gave during the medical check-ups all children and their guardians nutritional advise with emphasis on vegetable intake and vitamin C. When it comes to the prevention of anaemia, the vitamin C intake is important because vitamin C facilitates the uptake of iron in the gut (as milk counterparts it). A cheap and available sources for vitamin C in Bangladesh is lemon.
For babies, we advised exclusive breastfeeding up to six months, then start with the introduction of normal food and we discussed the possibilities of donation of breast milk by another woman when the normal supply is lacking.

3: Anti worm treatment (119 (15%) prophylactic and 11 (1,4%) therapeutic)
A strong relationship exists between a T. Trichiura, Helminth, Ascaris Lumbricoides or an Hookworm infection and anaemia.
There is a national de-worming program in Bangladesh. Of all checked children, only 16,4% did not receice antiwormtreatment during the last 6 month, This is a very low percentage compared to 2012: 67% didn't got any anti-worm treatment during the last 6 months. So it is clear the de-worming program is established now at the BVDO schools.

Table 11: Frequency of handing out preventive de-worm treatment and treatment for suspected acute worm infection for all children in 2010, 2011, 2012 and 2013

	2010	2011	2012	2013

	1103 children		1061 children		914children		children	
Preventive anti worm treatment	849	77%	552	52%	612	67%	119	15%
Active worm infection	228	21%	111	9%	58	6%	11	1,4%

Health education on the spot was aimed at increasing awareness of worm transmission, the disabilities caused by intestinal helminth and the importance of a 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.

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

Table 12: respiratory problems

Major diagnoses	**Total 2010**		**Total 2011**		**Total 2012**		**Total 2013**	
	1103		**1061**		**914**			
Pneumonia (clinical diagnosis)	57	5%	39	4%	22	2%	*24*	*3,5%*
Tuberculosis (clinical diagnosis)	1	0%	0	0%	1	0%	0	0%
Bronchitis	2	0%	12	1%	10	9%	11	1,4%

The 35 children with a severe acute respiratory infection (ARI) were treated with appropriate antimicrobials and home treatment advice.
For a doctor normally working in Europe it is amazing how few children have asthma in Bangladesh. We saw only 4 children with symptoms of bronch(iol)tis/asthma.

5: Suspected pathological Cardiac Murmurs
The MCC carrousel includes a cardial examination. We suspected seven children of having a pathological heart murmur, mainly due to a septal defect. Mitral regurgitation and atrial septal defects being the most common heart problems in the third world. For this condition no treatment is available although a good dental situation is essential for a healthy live.

Table 13: clinic findings for heart conditions

Major diagnoses	**Total 2010**		**Total 2011**		**Total 2012**		**Total 2013**	
	1103		**1061**		**914**			
Physiological murmur	35	3%	22	2%	25	3%	2	0,25%
Pathologicalmurmur (suspected)	10	1%	7	1%	10	1%	2	0,25%

The low incidence of physiological murmurs is due to under registration. We heard al kinds of physiological murmurs, from ejection murmurs to venous hums.
The children and their care takers with the suspected pathological heart murmurs were stressed on teeth brushing procedures. Besides this, they were told and got a written explanation to give their child antibiotics when going to a dentist for a teeth extraction.

6: Gastrointestinal complaints
During our health checks we encounter a lot of (older) schoolchildren with complaints of stomach pain. In the absence of weight loss, bloating or fever, these pains could due to constipation (many children drink only 2 cups of water a day), lack of fat in their food or stress induced. Pressure on children to succeed academically is well known, alongside with problems at home.

Table 14: clinic findings for gastrointestinal problems

Major diagnoses	**Total 2010**		**Total 2011**		**Total 2012**		**Total 2013**	
	1103		**1061**		**914**			
Gardia (suspected)	0	0%	0	0%-	1	0%	1	0%

Dysenteria	3	0%	1	0%	2	0%	1	0%
Acute diarrhoea	0	0%	1	0%	2	0%	o	0&
Constipation	17	2%	27	3%	57	6%	26	3,3%
Active worm infection	228	21%	110	10%	58	6%	13	1,6%
Active tapeworm(suspected)	0	0%	1	0%	0	0%	0	0%
Bilharzia (suspected)	0	0%	1	0%	0	0%	0	0&
Candida stomatitis	2	0%	0	0%	0	0%	0	0%

Data on milk products sensitivity, gastritis or peptic ulcers are currently lacking as well as the prevalence of Helicobacter pylori bacteria.

7: Ear-Nose-Throat (ENT)

The prevalence of acute ear infections (OMA, OME and otitis externa) were comparable with the prevalence in the Netherlands. The incidence was not significantly changed compared tot previous years

Chronic or recurrent ear infections are a common condition encountered by the ENT surgeons in "the third world". 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 in the non-western world.

Table 15 : Indices for ENT problems

Major diagnoses	**Total 2010**		**Total 2011**		**Total 2012**		**Total 2013**	
	1103		**1061**		**914**			
Otitis media acuta / n.o.s.	47	4%	8	1%	10	1%	12	1,51%
Otitis media with effusion	16	1%	8	1%	1	0%	5	0,63%
Otitis externa	7	1%	9	1%	4	0%	3	0,38%
Tympanic perforation	5	0%	1	0%			2	0,25%
Adenotonsillitis / tonsillitis	2	0%	2	0%	1	0%	6	0,76%
Hearing impairment					1	0%	2	0,25%

8: Skin diseases

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

Table 16 : Indices for skin problems

Major diagnoses	**Total 2010**		**Total 2011**		**Total 2012**		**Total 2013**	
	1103		**1061**		**914**			
Wounds n.o.s.	8	1%	11	1%	3	0%	1	0,13%
Eczema n.o.s.	32	3%	10	1%	9	1%	8	1,01%
Dermatomycosis			21	2%	22	2%	5	0,63%
Impetigo / furunculosis	18	2%	7	1%	7	1%	1	0,13%
Scabies	65	6%	20	2%	17	2%	14	1,76%
Erysipelas / cellulites	1	0%	2	0%	0	0%	26	3,27%
Wounds infected	13	1%	21	2%	5	1%	1	0,13%
Burnwound (fresh)			3	0%	0	0%	1	0,13%
other skin			13	1%	5	1%	4	0,50%

Pyoderma, scabies and tinea capitis are more common in overcrowded households. The role of traumatic sores as a predisposing factor for pyoderma is well known. Especially legs and less commonly ears (because of septic ear piercing) is common of posttraumatic pyoderma. The children with a skin infection were treated with macrolides cream. Antifungal cream in combination with hydrocortison was given for fungal infections (dermatomycosis) and hydrocortison crème was given for different forms of dermatitis. The severe cases of Scabies were treated with Ivermectin.

9: Eye problems

Table 17 : Indices for eye problems

Major diagnoses	**Total 2010**	**Total 2011**	**Total 2012**	**Total 2013**	
	1103	**1061**	**914**		

Strabismus	9	1%	2	4	0%	0%	1	0,13%
Keratoconjunctivitis	3	0%	3	4	0%	0%	0	0%
Amblyopia			2	0	0%	0%	2	0,25%
other eye			4	0	0%	0%	1	0,13%

Dry and/or painful eyes (Xerophtalmia), a common complain, can be, especially in the group of children above five years of age, 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.

10: Urinary tract problems
We performed urine screening test in 24 children with urination related complaints. 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. The 7 children (0,25%) with an urine infection were treated with antibiotics. The two children with the surgical problem were referred to a local hospital.

11: Dental
The Medical Check for Children mission to BVDO in 2012 did not included a dentist so we could not handle dental problems on the spot.

Table 18 : Indices for dental problems

Major diagnoses	**Total 2010**		**Total 2011**		**Total 2012**		**Total 2013**	
	1103		**1061**		**914**			
Caries n.o.s.	189	17%	255	250	27%	24%	195	24,56%
Caries with pain	141	13%	60	117	13%	6%	70	8,82%

Caries did not decrease over the last yers.
We stressed the care takers of the children with painful caries to take their child to a dentist.
After the check a local volunteer handed out toothbrushes and educate the children, care takers and teachers in teeth brushing.

12: Neuromusculair and Skeletal problems
Iwe have seen only only1 child with a psychomotoric retardation. We didn't count all children with headache, but given the habit of drinking only small amounts, a lot of children suffer for headache's and leg cramps.

Table 19 : Indices for neuromuscular and skeletal problems

Major diagnoses	**Total 2010**		**Total 2011**		**Total 2012**		**Total 2013**	
	1103		**1061**		**914**			
Psychomotoric retardation	6	1%	2	3	0%	0%	1	0%
Epilepsy			2	0	0%	0%	2	0%

13: HIV (1), AIDS (2), Tuberculosis (0) and malaria (1)
The diagnosis "suspected HIV/Aids", were either children who told us spontaneously or on request they were on treatment..
Two chldren told us they were suffering from AIDS. No children mentioned having malaria or tuberculosis (treatment).

Table 20 : *Indices for HIV, AIDS, Tuberculosis and malaria*

Major diagnoses	Total 2010		Total 2011		Total 2012		Total 2013	
	1103		1061		914			
HIV pos.	1	0%	1	0%	0%	0%	0	0%
AIDS	0	0%	2	0%	0%	0%	3	0, 38%
Tuberculosis	1	0%	0	1%	0%	0%	0	0%

Education health workers, caretakers and other local helpers:
One of the important tasks of MCC is to encourage the continuation of education of the caretakers and older children. During our week we discussed with the healthworkers how they could improve the general heath of the children in theur area. 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.

Future medical needs:
- Clean water for drinking and hygiene purposes remains a point of concern
- An anti worm program is implemented andshould be contunuated
- Breasfeeding should be stimulated
- School children should have their own growth chart and medical record
- English language courses for healthworkers are advisory

Last words
The fith mission of MCC to Bangladesh has been again a wonderful experience for the team members.
According to the policy of MCC this has been the last mission to this area in Bangladesh.
But the work is not done yet, and not all goals are achieved. We would like to extend our work in the lows lands in cooperation with BVDO in order to teach the local health workers how to get grip on the medical and devellopmental problems of children in that area.
Special emphasis needs to be put on personal hygiene (starting with the importance of hand washing with soap), dental care, good eating habits and nutrious food. Systematic health promotion and preventive measures, i.e regurarly measuring of height and weigt, should be implemented.
We are looking forward to achieve these goals together with BVDO and all the local health workers

Bram Felius, MD, pediatrician, medical end responsible and Dini van der Worm, organisational endresponsible of the Medical Checks for Children Mission Bangladesh-BVDO 2013

Appendix A: Overview of Medication

Medication	in stock from 2012	start mission	Total In stock	end of mission	used	Back to wholesaler	Left behind For BVDO	contains
1=Iron sirop , 200 ml (Zivit-i)(Alco pharma)	0	361	361	188	173	168	20	Per 5 ml: Iron III Hydroxide; olymaltose complex INN 200 mg; Thiamine Hydrocloride BP 5 mg; Riboflavin 5-Phosphate Sodium BP 2.74 mg; Pyridoxine Hydrochloride BP 2 mg; Nicotinamide BP 20 mg; Zinc Sulfate USP 27.45 mg (5 ml equals 50 mg elementary iron).
1=Iron tablets: Ferocit		15000	15000	9810	5190		9810	Each tablet contains ferrous fumarate BP 200 mg; Ferrous Fumarate BP 200 mcg. 100 tabl per container
2=Multivitamin syrup (Vitcod with cod liver oil) 100ml	0	1542	1542	972	528	972	1542	Per 5 ml: vit A 2000IU; Vit B1 0.70mg; Vit B6 0.35mg; Vit E 1.80 MG; Vit D 210 IU; Vit B2 0.65 mg; VitC 17.50 mg; Nicotamide 9.10mg; cod liver oil 0.10 gm
2=Multivitamins (Stanovit) tab	0	15479	15479	5550	9929	4500	1050	VitA 1.5; Vit D 10 mg; Vit B1 1.5 mg; vitB2 1.7mg; vitB6 2 g; sodiam ascorbet 68.48 mg; nitonamid 20 mg
3/6=Albendazol (Chuben) 400 mg	1292	1291	1291	1155	136		1155	Albendazole USP 400 mg
5=Ivermectine (Ivactin) tab 3mg	0	50	50	30	20	30		
5=Permetrine 5% 30gr	3		2	0	2			
10=Amoxicilline susp. 125mg/5ml, Sapox 100ml	0	80	80	39	33	39		125mg/5 ml, 100 ml
10=Amoxicilline 250 mg	449	560	560	420	140		420	250 mg
10=Amoxicilline 500 mg	140							500 mg
11=Augmentin 125/31.25 per 5 ml (Moxaclav) 100ml	25	50	50	20	30	18	2	125/31.25 per 5 ml, 100 ml
11=Augmentin 250/125, Moxaclav tab	0	60	60	60	0	60	60	250/125
12=Azitromycine (Zinex) 200 mg/5ml,15ml	27	57	57	42	28	29	13	200 mg/5ml,15ml
12=Azitromycine (Zinex)	0	10	10	10	0	10		200mg/5ml, 30ml

200mg/5ml, 30ml								
20=Metronidazol tab 400 mg (Menilet)	93	193	193	186	7	100	86	400 mg
21=Co-trimoxazole (Actrim) Sirop	22	32	32	8	24	8		trimeth. 40 mg / sulphametazole 200 mg per 5 ml, 60 ml
21=Cotrimoxazole 400/80mg, tab.	20	120	120	120	0	100	20	400/80mg, tab.
21= Co-trimoxazole 800/160, tab.	300	290	250	290	0		290	800/160, tab.
32/76= Chlormamphenicol, Opsophenicol 10ml	34	34	34	32	2		32	
50= Mupirocine Mupi 10gr (bactroban)	121	146	146	118	28	117	1	
51=Hydrocortison 1% 10gr	0	20	20	0	20			
53=Econazole nitrate 1% TCA 0.1%, tricoderma 10gr	73	77	77	66	11		66	
56=Iodium Viadon 10% 100ml	7	17	17	16	2	9	7	
Zilversulfadiazine 1%, burmacream 25gr	0	5	5	4	1	4		