Medical Checks for Children

Medical Report
The Philippines, 2013

David Kopsky, Roelof Ewijk, Janske van Aalsburg-Lock, October 2013

Introduction

From 13th to the 20th of October, for the second time a Medical Checks for Children (MCC) team visited Barangay 105, Tondo in Manila, the Philippines, a low housing area near a huge dumpsite. MCC checked and treated 1057 children between 0 and 12 years old free of cost.

The Barangay and its families is an area with limited access to medical facilities. The dump covers an area of at least 10 hectares with major environmental problems, as congestion, air pollution, sanitation and recurrent flooding (disaster-prone). Most parents work as scavengers on the dump, where slum poverty goes hand in hand with high health risks and environmental hazards. In 2009 18.4% of the Philippines lived on less than US 1$ per day and in 2011 17% of the population had a food intake below the minimum level dietary energy requirements.[1,2]

This second medical mission of MCC in the Philippines was organized in cooperation with the local San Martin de Porres Foundation, led by Father Boyet.

The Dutch team consisted of 11 members: the organizing leader Miguette Jadoul (lobbyist, journalist), medical leader David Kopsky (general physician), Ines von Rosenstiel (pediatrician), Roelof Ewijk (pediatric resident), Janske van Aalsburg-Lock (general physician, PhD resident), Mieke Heikoop (family physician), Yvonne Verdonk (neonatology nurse), Oscar van der Kroon (journalist), Saskia van der Kroon, Rolf Geipel (treasury of MCC), Birgitta Geipel (accountant).

Technical equipment, toothbrushes and some of the supplies were brought from the Netherlands by MCC team members. The medication was ordered by David Kopsky at a local generic drug company.

The newly build building in Barangay 105 Tondo, was the location for the medical checks. The ground floor consisted of a central hall, kitchen, an office for the nurse and doctor, and dentist office. At the second floor there is a big multifunctional room, and an administrative office. The third floor has a dormitory and a class room. The fourth floor with two dormitories were used by the MCC team. The fifth floor is an open air space, covered with a roof. In this building several workshops are hosted to empower the people of Tondo, for example high speed sewing, wellness massage training, barista training, baking and cooking training organized together with local Philippine volunteers. Since June 2013 a St. Martin Mission feeding program started to feed 150 scholars everyday, with vegetables, rice, and meet, supplemented with multivitamins.

Support from the local team included the following (amongst others):

- Selection of patients and care givers
- Availability of volunteers & translators (Tagalog – English)
- Availability of a Philippine nurse practitioner (new in comparison to last year)
- Facilitating board, lodging and food for all MCC team members at check site
- Prior announcement of the medical mission in the location

- Guiding patients to the hospital for further diagnostic examination
- Making copies of all necessary papers
- Giving support in ordering and delivering extra medication during the medical mission
- Giving support to the MCC team during the medical mission
- Arranging the cooperation with the local hospital and Dr Ferrer for medical follow up
- Providing food for the medically checked children
- Arranging Smokey Mountain Tour

On the 12th of October, before the start of the medical mission, the Philippine and the Dutch team met and gave presentations to get more inside in the differences and similarities of culture, norms and values. The medical results of MCC 2012 Manila were shared. Also the organized slum tour on 15th of October provided the context of our medical mission and was a unique experience for the team, giving an insight in the hard living and working conditions of the scavenger families.
The Philippine team consisted of 36 volunteers/translators, helping to make the mission again a success. The MCC team was again very happy with the sublime organization of the local team. The 66 patients of last year were followed-up with great care, precision and detailed rapports.
Special thanks go to the core local organizers. We hope the 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, warm presence.

Medical Checks for Children on location:

Table 1: Number of checked children and their stay per date

Date	Number of children	Location
13-10-2013	186	Scholars of St. Martin (Barangay 105/150 and Delpan)
14-10-2013	189	Referrals 2012 & Barangay 105
15-10-2013	86	Sitio Damayan & Malnourished Kids of Barangay 105
16-10-2013	111	Happy Land
17-10-2013	267	Temporary housing
18-10-2013	218	Pritil
Total	**1057**	

About 90% of the children were from Tondo and 10% were from Del Pan.
Sitio Damayan residents are more prone to smoke because of the charcoal factory, most of the houses have no toilets, and always submerged in water. Houses are made of carton boxes, sometimes no walls, just roof and they are

exposed to extreme heat of the sun, cold and wet weather. Respiratory problems, skin diseases, diarrhea are the common diseases. One of the problems among the children from this community are infected wounds, because residents usually walk barefooted. Their livelihood is "pangangalakal" or scavenging, so they are exposed to all kinds of health hazards.
Residents from Pritil live on water ways, by the river, and some under the bridge. Like the residents of Sitio Damayan, Aroma, Temporaray Housing, their means of livelihood is scavenging on the water ways using a boat, pedicab driving, stevedore.
Happy land and Temporary Housing - residents live in dilapidated buildings, floor area is subdivided in small cubicle for each family. Most of the time the first floor is under water, electricity and water is very expensive, so most of them have no electricity, they don't bath because of scarcity of water. No toilet, urine and feces is just placed in plastic bags, and thrown anywhere. Sometimes, small children just squat on any corner and do their thing (defecate), and flies are everywhere. Many areas are flooded so people are prone to Leptospirosis, and most of the children have an active worm infection. Most of the residents just buy their food on the street corner store, food that is prepared with bare hands, and no cover to protect from flies and dust. With these practices, diarrhea is prevalent. Means of livelihood: scavenging, stevedore, garlic peeling.
Barangay 105, the area where the St. Martin Building is located: most of the residents live in semi-concrete houses, buildings, but there are some who have no homes of their own, and just live in the side streets. Also, there are some residents who have no bed of their own, and used to sleeping on the concrete or galvanized floors. Residents here have common cough and colds, diarrhea(tap water for drinking), pulmonary tuberculosis (different families living under one roof) and adult residents have hypertension, and diabetes.

Carousel

The children were seen free of cost, at the MCC carousel as follows:
1. Registration
2. Height and weight
3. Blood test (hemoglobin)
4. Physical examination (saturation occasionally)
5. Distribution of medication (pharmacy)
6. Food station with spaghetti with vegetables and fruit.
7. Education on hygiene, tooth brushing (a tooth brush was given to each child) and hand washing.

Data collection
Each child was accompanied by a caretaker. Anthropometric measurements were recorded, and a finger prick sample was taken to determine the hemoglobin (Hb) concentration. Each child was examined by a medical doctor. Prior treatment of deworming and actual medication, including iron

and multivitamin intake, were noted. An extended patient history was recorded, with specific attention to respiratory, cardiologic, gastrointestinal, infectious, and developmental / neurologic problems. Caretakers were asked to bring medical reports of known diseases. Local volunteers, which spoke fluently English, were assigned as translators. At the end of the MCC carrousel, the data of the checked children were put in the MCC data base.

Diagnosis and categories of ailments:

During the week, MCC checked 1057 children. The children ranged from 0 to 14.5 years of age (mean 5.0; SD 3.5), of which 51.4% were girls. Every chosen family could chose to assign 2 children for the medical check. In total 182 (17.1%) special tickets were given to children, who were sick or came along with the family though were not included in the preselection.
110 Children (10.4%) were checked last year by MCC, though this will be most probably less, because when comparing last year data with data of this year, sometimes family names of children are the same, though the first names differ. The reason that only a small group of the children is seen again is partly due to relocation of people by the government. A mother expressed her gratitude to us by thanking MCC for better health of her child last year.

The main alleged causes were respiratory diseases (28.0%, N=296), such as astma (7.0%, N=74), pneumonia (4.3%, N=45), and common cold (15.4%, N=163). Other diseases diagnosed were active worm infection (12.5%, N=123), otitis media (3.7%, N=39) of which 25 children with effusion (2.4%), lice (2.7%, N=29) and diarrea (2.7%, N=28) of which 15 children with dehydration (1.4%).
Also skin disease was a common clinical finding (16.9%, N=179), with the more specific clinical diagnoses: infected wounds (4.7%, N=50) dermotomycosis (3.7%, N=39), impetigo (2.7%, N=28), scabies (2.3%, N=24) and eczema (1.2%, N=13). Caries was present in 319 children (30.2%), of which in 125 children pain was accompanied (11.8%). Finally, among the children examined 31.2% were free of clinically detectable disease.

The children had a mean height of 97.2 cm (SD 22.7), mean weight of 15.0 (SD 7.6) and a mean hemoglobin of 7.4 mmol/l (SD 0.8). The overall health and nutritional status of the children was moderately poor, with **44.6% (N=471) stunting, 32.3% underweight (N=341),** and **18.2% anemia (N=192)** of which 7 children had a deep anemia (<5 Hb mmol/l). Due to the high risk of mortality and morbidity of children under five, the focus of MCC is on checking vulnerable young children. Of all checked children, 58.6 % (N=619) was five or younger.

Table 2: Age and gender distribution of checked children

Age in years	N	%
Total	1057	100%
≤ 1	165	15.6%
> 1 - ≤ 5	454	43.0%
> 5 - ≤ 10	330	31.2%

> 10 - < 18	108	10.2%
boys	514	48.6%
girls	543	51.4%

Figure 1: distribution of age

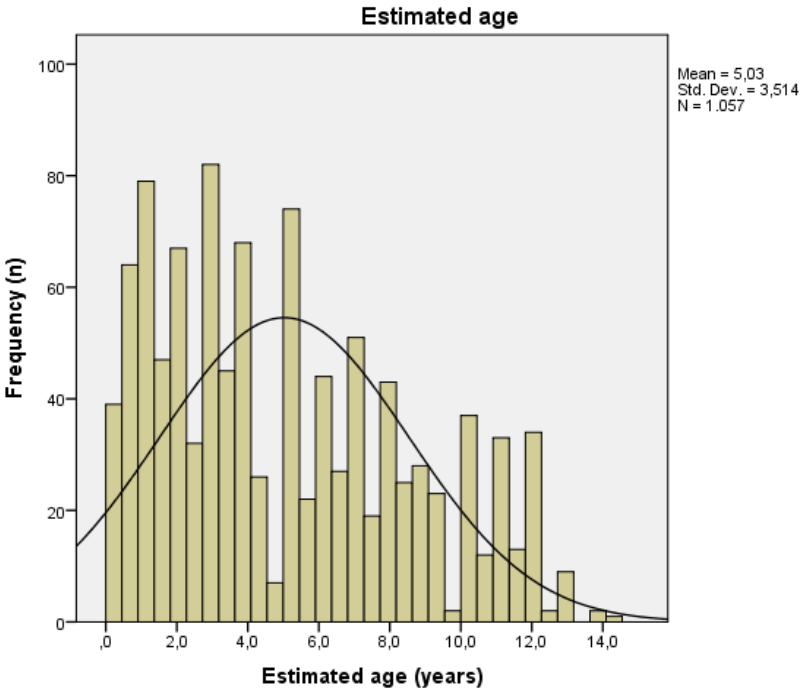


Table 3: Prevalence of diagnoses

Diagnosis	**N**	**%**
Anemia	192	18.2 %
Underweight (w/a)	341	32.3 %
Wasting (w/h)	88	8.3 %
Stunting (h/a)	471	44.6%
Caries without pain	194	18.4 %
Caries with pain	125	11.8 %
Active worm infection	123	12.5 %
Pneumonia	45	4.3 %
Asthma	74	7.0 %
Common cold	163	15.4%
Otitis media	39	3.7 %
Otitis externa	10	1.0%
Dermatomycosis	39	3.7 %
Scabies	24	2.3 %
Infected wounds	50	4.7 %
Impetigo	28	2.7%

w/a: weight-for-age <-3 SD, w/h: weight-for-height <-3 SD, h/a: height- for-age <-3 SD according to the WHO Child Growth Standards.

Further diagnostic evaluation
In total 10 X-rays were ordered. As far as all the results are known already in six children tuberculosis was confirmed. Also laboratory tests were done, and in one case dengue was confirmed. Thyroid screening test was done because of clinical struma, results were normal. Hemostatic tests were done in two children because of bleedings symptoms, results were normal.

Treatments
Most of the ailments could be treated on the spot and consisted mainly of multivitamins, iron, mebendazol (anti-worm), and antibiotics.

Table 4: given treatments

Treatment	N	%
Multivitamins	502	47.5%
Iron	62	5.9%
Mother iron	46	4.4%
Preventive anti-worm treatment	330	31.2%
Acute anti-worm treatment	132	12.5%
Amoxicillin	78	7.4%
Claritromycin	30	2.8%
Ivermectine (scabies treatment)	29	2.7%
Ventolin	55	5.2%
Eardrops	21	2.0%
Anti-bacterial cream	62	5.9%
Anti-fungal cream	38	3.6%
Hydrocortison cream	21	2.0%

Referrals

MCC referred 76 acute and chronically ill children to the medical specialists and Dr Ferrer in the Barangay for further diagnoses, and follow-up, such as compliance of treatment, urine recheck, and hemoglobin recheck (7 children) after 3 months in the cases of deep anemia.

Acute situations
Two children being in an acute situation were admitted to the local hospital with an ambulance. The first child suffered of dengue hemorrhagic fever and severe dehydration. The child was confined for a week with intravenous rehydration. The other child had an acute asthma attack, without alleviation of ventolin and drop of saturation to 84%. Pure oxygen, present on the check site elevated the saturation to 94%. The child was treated for three days at the hospital with nebulizing salbutamol, oxygen and prednisolone treatment.

Follow-up

Five patients with palatoschisis were identified, which will be referred to an oral surgeon from the United States, who will come in 2014 to conduct these operations. Miss E. Cheng – Chua, the director of the local organization, will be the contact person.
Three patients with (possible) heart diseases were identified. Diagnoses of tetralogy of Fallot, rheumatic heart disease and ventricular septal defect diagnosed by a local physician. Patients are sent to the cardiologist for evaluation of an operation. When there will be a clear indication for operation, and all relevant data are gathered, the Nieuwendijk foundation will be asked for sponsoring.
Two patients with an inguinal hernia and one patient with an abscess were referred to a surgeon. Two patients with eye problems (congenital cataract and amblyopia) were referred to an eye doctor (ophtamologist). The costs of a CT-scan will be asked for a child with epileptic seizures, and for a spastic child due to meningitis pediasure and physiotherapy is arranged.

Dental referrals
In total 92 children (8.7%) were referred to the in house available dentist, all visitations and treatments free of costs. The criteria for referral to the dentist were (1) children under 7 and caries with pain accompanied with wasting, stunting and/or underweight, (2) children above 7 and caries with pain, (3) abscess and caries.

Table 5: dental referrals per day

Referral dentist	N	% of the day
13-10-2013	32	17.2%
14-10-2013	24	12.7%
15-10-2013	2	2.3%
16-10-2013	6	5.4%
17-10-2013	14	5.2%
18-10-2013	14	6.4%

1: Growth abnormality and malnutrition

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. Literature from the Philippines show that 4 Million children are chronically malnourished. The main factors contributing to malnutrition in Manila are urban slum poverty, lack of sanitation, poor living conditions (overcrowding), child labor and child abuse, lack of protein intake, iron and multivitamins.[3]
The prevalence of stunting, wasting and underweight in our high risk population was very high 44.6%, 8.3 % and 32.3% respectively. The percentages are calculated including children who could not be calculated

due to the criteria hereunder. Excluding these children stunting, wasting and underweight was 44.6%, 9.9% and 35.0%, respectively.

Table 6: Percentage of severe stunted children per day

Stunting per day	N	% of the day	Not possible to measure: N
13-10-2013	57	30.7%	0
14-10-2013	61	32.3%	0
15-10-2013	52	60.5%	0
16-10-2013	49	44.1%	0
17-10-2013	143	53.6%	1
18-10-2013	109	50,0%	0
Total	**471**	**44.6%**	**1**

Table 7: Percentage of severe wasted children per day

Wasting per day	N	% of the day	Not possible to measure: N
13-10-2013	6	3.2%	89
14-10-2013	17	9.0%	21
15-10-2013	26	30.2%	13
16-10-2013	7	6.3%	10
17-10-2013	13	4.9%	26
18-10-2013	19	8.7%	13
Total	**88**	**8.3%**	**172**

Table 8: Percentage of severe underweighted children per day

Underweight per day	N	% of the day	Not possible to measure: N
13-10-2013	35	18.8%	45
14-10-2013	43	22.8%	12
15-10-2013	46	53.5%	5
16-10-2013	26	23.4%	8
17-10-2013	104	39.0%	9
18-10-2013	87	39.9%	5
Total	**341**	**32.3%**	**84**

Figure 2: distribution of height

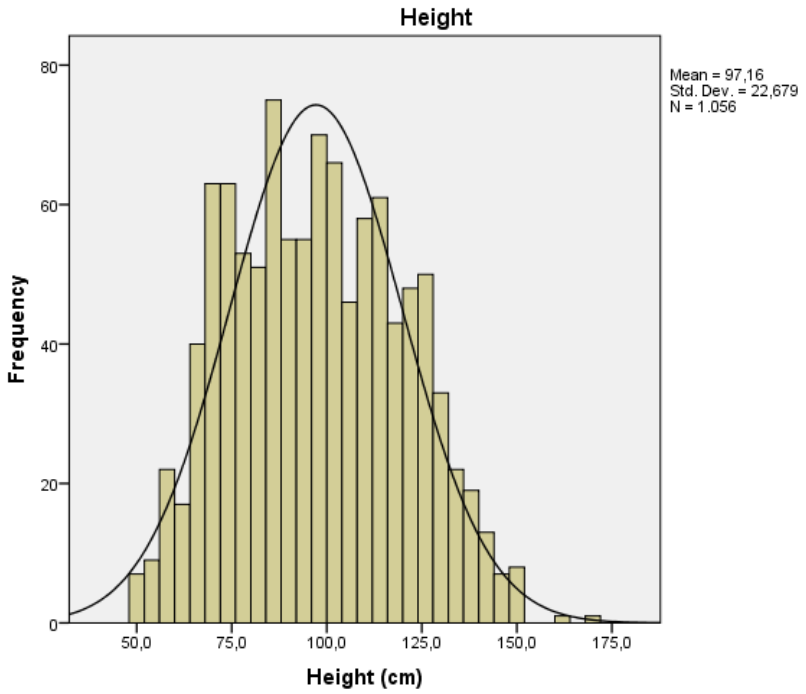
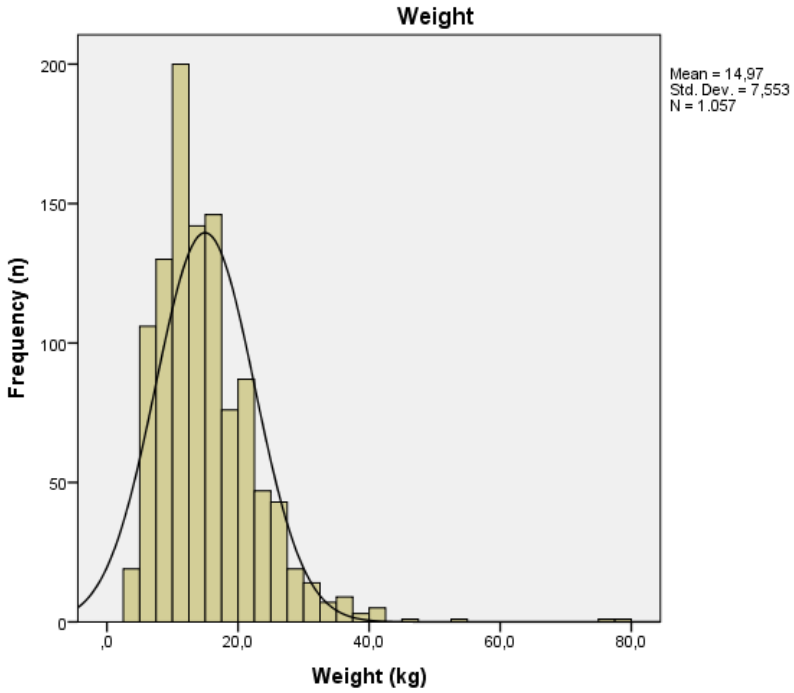


Figure 3: distribution weight



Apart from the above mentioned factors leading to malnutrition, the prevalence of stunting is also correlated with chronic exposure to chemicals such as lead and cadmium on the dumpsites.[4,5] Clinically many children and their care givers mentioned loss of appetite in their children, which, apart from

being related to pinworms and caries with pain, is a leading symptom of lead pollution. The lead exposure in the Barangay 105 zone, although exact data are missing, is mainly caused by the deplorable housing conditions near the Marcos highway with heavy traffic and air pollution of diesel trucks, busses and jeepneys. Also charcoal burning, carbonmonoxide, heat, and waste adds to the cumulative exposure of the children to chemical pollutants.
Malnutrition is thought to account for one third of all deaths of children under five (UN Millennium Developmental Goals). Therefore, we assessed growth abnormalities, measuring and weighing all children in a standardized fashion, using the following criteria:
- Severe 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.
- Severe 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.
- Severe stunting = height (or length)-for-age at or under the third percentile of the international 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.
On the location checked, the typical diet is rich in carbohydrates, mainly rice and street food but deficient in proteins and other food categories. In 2000, the World Food Program released figures that 60% of urban slum households in the Philippines were unable to fulfill basic nutritional requirements.

This group of children showed high prevalence of all 3 types of malnutrition. San Martin de Porres started a half yearly feeding program with for malnourished children for the first time in June 2013. This feeding program consisted of every day healthy food suppleted with multivitamins and iron.
MCC was able to include children for the second new feeding program starting on Monday the 21st of October 2013. When a child was prone to wasting, stunting and underweight, he/she could join the feeding program. Also children who fulfilled 2 of the 3 criteria and had a moderate to severe health problem were included. In total we included 67 children in the feeding program. Fifteen children we checked were already enrolled in the first feeding program.

We treated all children with growth abnormalities with multivitamins for 3 months, and spread the knowledge to the care takers about the necessity of fruit and green vegetables in their child's diet. Advices were customized to the availability and costs of local fruits highlighting pineapple, papaya and mango rich in vitamin A and C.
During the check days all children were provided a warm meal with spaghetti and tomato sauce, donated by San Martin de Porres, accompanied with a

fruit (apple/orange/pear) sponsored by Dutch and German sympathisants, so none of the children left with an empty stomach.

During the medical checks, we paid special attention to issues of hygiene and nutritional advice. We emphasized hand-washing, fruit and dark green vegetable intake. We noticed that a lot of mothers fed their babies up to the age of one year or more, exclusively with breast milk. For babies, we advised exclusive breastfeeding up to six months and then to start with the introduction of additional foods. Philippine data shows that 75,5 % of all children are breast fed up to 6 months. The median durations of breast-feeding for urban and rural areas are, respectively, 8,6 and 12,9 months nationally.[6] Most probably the children are breast fed long time, since this is a way of birth control.

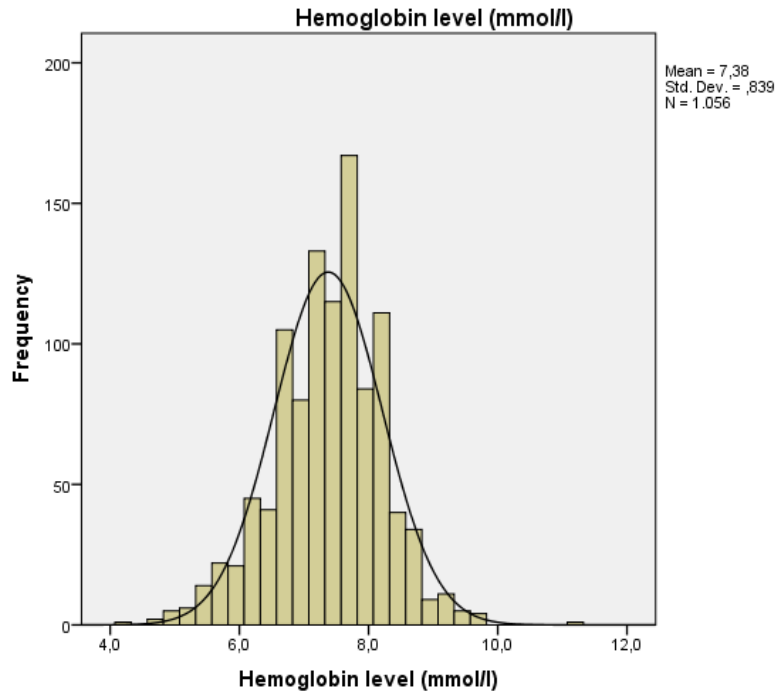
2: Anemia

Anemia is the most prevalent micronutrient disorder. To date, no research figures exist on the number of children in the Philippines with anemia as a result of poor health and nutrition as well as poor environment.
The prevalence of anemia in the group of children we checked this year in Tondo was 18.2%. Compared to 2012 (45%) this was more than twice as low. One of the reasons could be selection bias as a part of the children seen were sponsored children, thereby already receiving multivitamins and iron. Also local deworming programs are more widespread as we needed to deworm twice less children compared to 2012. Less active worm infection and thereby less anemia could be an explanation. Other possible attributable effects of environmental changes, dietary changes and other changes cannot be excluded.

Table 9: Percentage of anemic children per day

Anemia per day	N	% of the day
13-10-2013	19	10,22%
14-10-2013	63	33,33%
15-10-2013	13	15,12%
16-10-2013	15	13,51%
17-10-2013	42	15,73%
18-10-2013	40	18,35%

Figure 2: distribution of anemia



Anemia is largely attributable to poor dietary quality (diets low in key nutrients) and high disease loads. To date, 28% of the anemia is due to iron deficiency.[3] There is no data on lead intoxications in our children checked.
In the Philippines 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 anemia, it is important to recognize that the control of anemia requires a multi-faceted approach which, through integral interventions, addresses the various factors that play a significant role in producing anemia 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. In our population the mean hemoglobin level was significantly higher in the population whom got deworming treatment in the past six months (Hb 7.6 mmol/l) compared with the population whom not received deworming treatment (Hb 7.2 mmol/l; p <0.001). In addition, anemia was significantly less prevalent in the previous deworming group compared with the no deworming group (respectively 46/351=0.1 and 45/702=0.2; p<0.01).

Table 10: Percentage of anemic children per age category

Anemia	N	%
≤ 1 year	47	28.5%
> 1 year - ≤ 5 years	87	19.2%
> 5 years - ≤ 10 years	42	12.7%
> 10 years	16	14.8%

We treated the children with anemia (and their mothers if they were breast feeding) with multivitamins if they were underweight, stunting or wasting. If there was only anemia iron supplements were given for three months. Seven children showed a hemoglobin level below 5.0 mmol/l and will need a recheck after 3 months.
To combat anemia, vitamin C intake is important because vitamin C facilitates the uptake of iron in the gut (just as milk and tea counteracts it)[7].

3: Worm treatment
In the location checked, the prevalence of serious worm infestations was moderately high. We treated therapeutically 132 children (12.5%), because care takers saw worms in the stool or because of other clinical signs. Prophylactically we treated 330 children (31.2%) with one tablet of Mebendazol 100 mg, because they did not have a deworming treatment within 6 months. A considerable group of children were already enrolled in a local bi-annual anti-worm campaign. Comparing this to prophylactic treatment of last year 2012 (64%), the treatment was reduced with one half. Since worms are one of the main causes of anemia, the considerable difference in the groups 2012 and 2013 regarding being already dewormed, will most probably one of the main reasons of less detected anemia in 2013 compared to 2012.[8]
Pinworm infections and other helmiths are widespread in the Philippines and most common amongst children, especially those who play in soil containing mature eggs and who do not have good hygiene habits. Severe infections in young children can result in ***trichuris dysentery*** syndrome: bloody mucoid diarrhea, anemia and retarded growth.
If whipworm infection is serious, it causes intestinal lower or epigastric pain, lack of concentration, and fatigue. In severe and prolonged infections impaired physical or mental development in children results, most likely to be multifactoral, incorporating vitamin deficiencies and malnutrition caused by the abnormal functioning of the intestine. On some occasions a whipworm may be noticed when it crawls up into the throat, and exits through the nose or mouth, as described by several caregivers in Tondo.
A strong relationship exists between Ascaris Lumbricoides, or T. Trichiura infection and anemia.
On the spot health education was aimed at increasing awareness of worm transmission, the different problems caused by intestinal helminth and the importance of de-worming 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 realization of the deplorable housing conditions of many families and the environmental hazards of the dumpsite.
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 diseases
In total 296 children suffered from respiratory diseases (28.0%), such as asthma (7.0%, N=74), pneumonia (4.3%, N=45), and common cold (15.4%, N=163).
Evidence from literature supports our findings that living near or on a hazardous waste site with persistent organic pollutants (POP) increases the risk of respiratory disease in children.[9,10] POP include dioxins, furans, polychlorinated biphenyls and chlorinated pesticides. These substances are very persistent in both the environment and in the human body. They also have adverse health effects on several different organ systems, including the immune function. A depressed immune system is expected to increase the incidence of infectious diseases. Several studies demonstrate elevations in respiratory infections, matching the high prevalence of symptoms such as reported chronic cough and cold in our population.
Exposure of (semi)volatile compounds in air pollution also result in increased risk of recurrent middle ear infections, (39 children (3.7%) with acute middle ear infection and 10 children (1.0%) with otitis externa.
A high number of children were diagnosed with asthma or severe asthma (a total of 74 children (7.0%)). This is double the amount of children compared to the group in 2012. One child needed acute hospitalization with oxygen supplementation and frequent nebulizing. On the spot we could treat several children with salbutamol nebulizing treatment and monitoring of MCC portable saturation device.

The peak of asthma patients was between 1 and 5 years and the highest prevalence of pneumonia was under 5 years. In summary, home environmental factors are particularly important for the development of respiratory morbidity among children.

Table 11: Percentage of asthmatic children per age category

Astma	**N**	**%**
≤ 1 year	6	3.6%
> 1 year - ≤ 5 years	41	9.0%
> 5 years - ≤ 10 years	21	6.4%
> 10 years	6	5.6%

Table 12: Percentage of children with pneumonia per age category

Pneumonia	**N**	**%**

≤ 1 year	8	4.9%
> 1 year - ≤ 5 years	29	6.4%
> 5 years - ≤ 10 years	4	1.2%
> 10 years	4	3.7%

Although we cannot change the cumulative exposure of the children living on the dumpsite on such a large scale with the high amount of outside and inside airpollution, transferring knowledge is essential to the caregivers how to manage the asthma effectively. Salbutamol drink is available and cheap to treat asthma. MCC gave one nebulizer and 3 spacers to the local organization, to be able to treat asthmatic patients in their moderate exacerbation.
MCC advice: the local organization can now create a nebulizer unit for patients with asthma attacks. The children will be nebulized with ventolin and can be given during 3 days prednison per os 2 mg/kg in 2 dosages per day, with a maximum dosage of 20mg twice daily.

5: Skin diseases
Skin disease was a common clinical finding (16.9%, N=179), with the more specific clinical diagnoses: infected wounds (4.7%, N=50) dermotomycosis (3.7%, N=39), impetigo (2.7%, N=28), scabies (2.3%, N=24) and eczema (1.2%, N=13). Antifungal cream (sometimes in combination with hydrocortisone) was given for fungal infections (dermatomycosis) and hydrocortisone cream was given for different forms of dermatitis and eczema, infected wounds were treated with Fusidin cream from the Netherlands.
In the Philippines benzyl benzoate lotion is the first line scabies treatment, which was given out to the care givers of young children. Older children with a weight above 15 kg were treated with a tablet ivermectine. Preferably, soaps are needed to wash clothes and bedclothes at high temperature (60°C) to kill off the scabies mites. A good alternative is to put infected clothes and bedding into a sealed plastic bag for 3 days in the sun. Besides treating the children with scabies, we educated in prevention of scabies and treated the affected household members.

6: Dental problems
In general high caries prevalence was found: 319 children (30.2%), of which in 125 children pain was accompanied (11.8%). Fluor is not added in the drinking water in Manila. This high prevalence of caries was mainly due to deplorable dental care, malnourishment and the intake of sweets and sugary beverages.[11]
This MCC mission to the Philippines did not include dentists, though a Philippine dentist is every Tuesday and Thursday on the spot to treat patients for free. The Free Masons donated a modern beautiful dentist chair so that the dentist could work optimally the whole year around.
Also in the medical mission we could directly refer the children to her, and they were treated directly on the spot.

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 results show that despite a certain level of knowledge and culture of preventing oral/dental disease in the general Philippine population dental disease is rampant in slum residents. Sweets are usually the main tactic for the care givers to please the children in their harsh situation. Therefore, many changes need to be made, starting with health promotion activities within the Barangays.
On the medical check days many volunteers took part in the health promotion activities with teaching proper hygiene and handing out toothbrushes of the children.

Education health workers, caregivers and other local helpers:
One of the most important tasks of MCC is to encourage the continuation of health education of the caregivers and older 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. Health care and social welfare providers in Tondo are at the front of observing adverse environmental impacts on children. Training and specialty expertise on environmental health in the dumpsite pediatric community is largely desired.
During the week the mixed Philippine-Dutch team shared knowledge about common diagnoses of frequent illnesses and treatments. We especially focused on anemia and malnutrition, balanced diet, infections, parasites, helminths and asthma. Nutritious food, deworming, iron and vitamin supplements, as well as hygiene should be key components of local health promotion.

Other missions in the area
On June, 2013, Operation Tule (Circumcision) was performed for young boys. Optha Mission provided eye glasses for all the scholars. United Laboratories Medical and Dental Mission gave medicines, flu vaccinations and dental care.

Donations:
Two hemocues for the follow up of the hemoglobin tests were donated by Suzanne Volkmann from Germany. MCC gave one nebulizer, and three spacers to the local organization, to be able to treat asthmatic patients in their moderate exacerbation.

Conclusions and future medical needs:
- The results above show the strong need for preventive medical help for the children in Tondo. Luckily the local organization has put a lot of effort in starting sustainable programs to support and raising knowledge in health care and (craftsman) skills.

- The medical report Philippines 2013 could (by efforts of San Martin de Porres) possibly be translated into Tagalog, so that our partners in the communities and local health workers will have access to the results and follow-up in years to come.
- Setting up a relief fund to finance additional diagnostic tests done in a hospital (e.g. x-rays, blood tests, EEG, MRI scans).
- Having an acute bag on the spot, with infuses, drips, breathing balloons, and oxygen.

General recommendations:

- Preventing leading causes of disease: HELMITHS

It is important to stress the importance of regular (6-monthly) de-worming of all children above 2 years up to fourteen year of age. Maybe the health centre can help to organize a structural anti-worm program for the whole Barangay area. The children who were dewormed by MCC will need a second anti-worm pill in 6 months from now (March 2014).

- Preventing leading cause of disease: MALNUTRITION

Good eating habits, with discouragement of fast food and sugary beverages with emphasis on nutritious food, fruits rich in iron and vitamins. Health promotion classes for mothers could be started in the local Barangay hall, maybe extended by a health education program for pregnant mothers with special attention to breast feeding and good motherhood.

- Preventing leading causes of disease: CARIES

Special emphasis needs to be put on health promotion family classes directed to personal hygiene in everyday life, the importance of hand washing (with soap) and dental care. We were impressed by the fact that the caregivers and their children maintained so much basic hygiene, as very few children were presented dirty, or with filthy clothes.

- Influencing health-related behaviors: knowledge, beliefs, skills, attitudes, values and support.
- Information gatherings within the community about air pollution and its risks for asthma and respiratory infections. Targeted information on how to manage asthma effectively, with the local health centre being the spill for asthma medication, spacers and nebulizers.
- Scavenger children are affected by severe environmental risks, such as air pollution, inadequate sanitation, disease vectors, chemical waste and injuries, in addition to poor nutrition, stress and poor schools. Due to their cumulative high health risks they need better access to medical treatment. Although treatment in governmental hospitals is for free, most of the time supplies are not available in these hospitals. Furthermore, medicines are paid out-of-pocket, as is more than 50% of all healthcare.

Final remarks:

The second medical mission in the Philippines was a rewarding experience touching the hearts of all the team members. Both the Dutch and the Philippine group learned from last year and made the mission even better.

Cooperation and collaboration with the local and Dutch organizations and implementing mutual programs is exciting. The scavenger population taught us much about life: living in appalling conditions yet welcoming us with warm smiles on their faces and being responsible, child loving parents.
It is stimulating to work with team members from different cultural backgrounds, exchanging ideas and learning from each other in such a friendly, respectful way.
We are inspired by the efforts of our host country facing the vast medical demands with limited supplies.
In October 2014 the MCC team will return to Tondo, Manila to see the children once again and work together with all the wonderful people who put their time and energy into creating a better world for all of us.

Special thanks go to the core team: Ms. Eunice Cheng-Chua, Ms. Luisa Celis, Ms Cherry Gonzales, Ms. Juliette Kwee, and the rest of the local team with whom the MCC team would love to work together again next year. We hope to see fruitful cooperation with the local community and Barangay health centre in the coming years in order to achieve the future goals.
On behalf of the MCC team Philippines 2013:

David Kopsky, *medical mission leader*
Roelof Ewijk
Janske van Aalsburg-Lock

References

1. WHO. Millennium Development Goals. 1a. Proportion of population below $1 (PPP) per day.
2. WHO. Nutrition Landscape Information System. 2011; http://apps.who.int/nutrition/landscape/report.aspx?iso=phl. Accessed 29-10-2013.
3. Rohner F, Woodruff BA, Aaron GJ, et al. Infant and young child feeding practices in urban Philippines and their associations with stunting, anemia, and deficiencies of iron and vitamin A. *Food Nutr Bull.* Jun 2013;34(2 Suppl):S17-34.
4. Solon O, Riddell TJ, Quimbo SA, et al. Associations between cognitive function, blood lead concentration, and nutrition among children in the central Philippines. *J Pediatr.* Feb 2008;152(2):237-243.
5. Ahamed M, Siddiqui MK. Environmental lead toxicity and nutritional factors. *Clin Nutr.* Aug 2007;26(4):400-408.
6. Zohoori N, Popkin BM, Fernandez ME. Breast-feeding patterns in the Philippines: a prospective analysis. *J Biosoc Sci.* Jan 1993;25(1):127-138.
7. Sirover WD, Siddiqui AA, Benz RL. Beneficial hematologic effects of daily oral ascorbic acid therapy in ESRD patients with anemia and abnormal iron homeostasis: a preliminary study. *Ren Fail.* 2008;30(9):884-889.
8. King CH, Dickman K, Tisch DJ. Reassessment of the cost of chronic helmintic infection: a meta-analysis of disability-related outcomes in endemic schistosomiasis. *Lancet.* Apr 30-May 6 2005;365(9470):1561-1569.
9. Tupasi TE, de Leon LE, Lupisan S, et al. Patterns of acute respiratory tract infection in children: a longitudinal study in a depressed community in Metro Manila. *Rev Infect Dis.* Nov-Dec 1990;12 Suppl 8:S940-949.
10. Ma J, Kouznetsova M, Lessner L, Carpenter DO. Asthma and infectious respiratory disease in children--correlation to residence near hazardous waste sites. *Paediatr Respir Rev.* Dec 2007;8(4):292-298.
11. Monse B, Benzian H, Araojo J, et al. A Silent Public Health Crisis: Untreated Caries and Dental Infections Among 6- and 12-Year-Old Children in the Philippine National Oral Health Survey 2006. *Asia Pac J Public Health.* Dec 13 2012.