Medical Report Philippines

2017

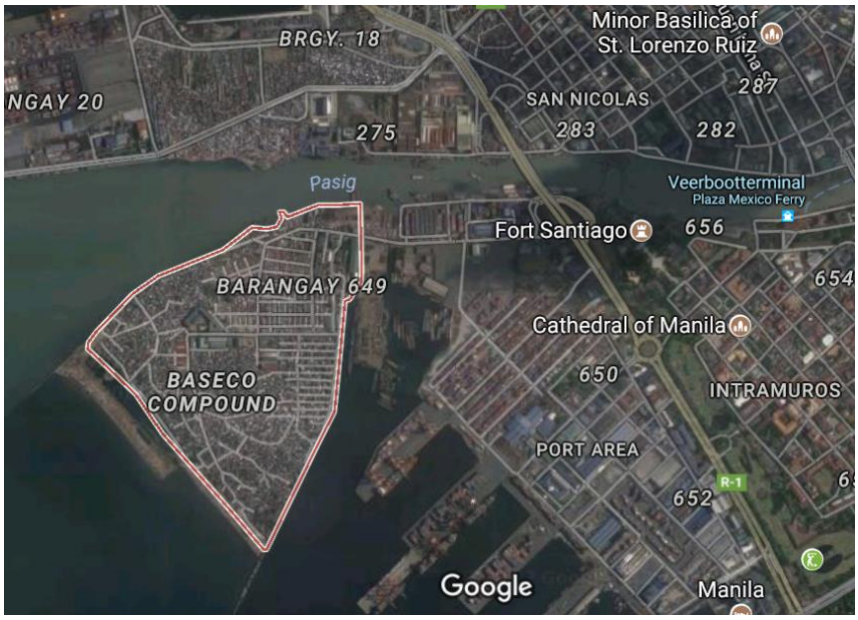
Medical Checks for Children

Introduction

From the 7th of October until the 13nd of October 2017, a Medical Checks for Children team (MCC) team visited for the sixth time Tondo, Manila, the Philippines, a poverty stricken low housing area. For the second time the checks were held at a new location at the evacuation center located in the neighborhood of Delpan. We checked and treated 884 children on the spot aged between 0 and 12 free of cost. The main group of children was under the age of 10.

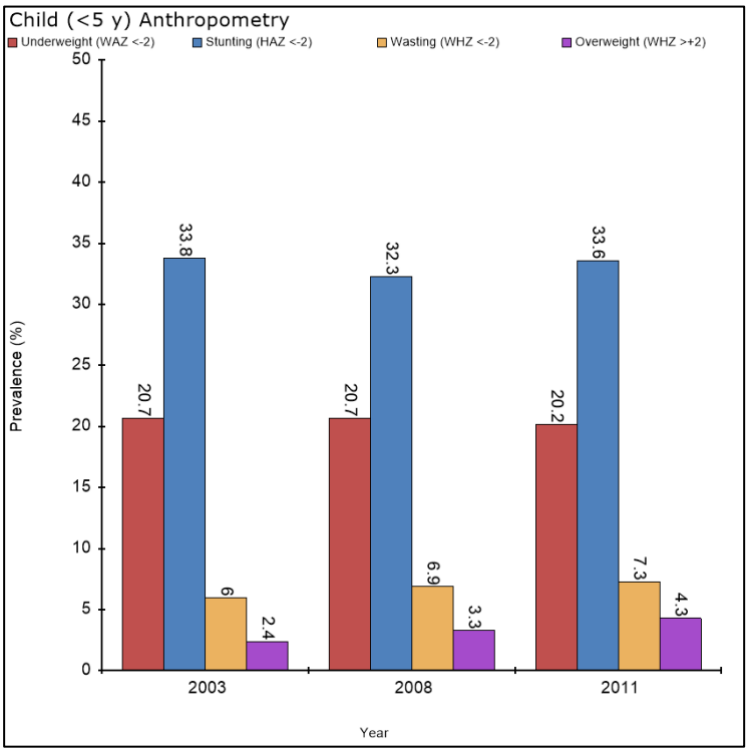
Baseco and Delpan slum areas - health

Children were seen from the Baseco and Delpan slum areas. Manila is one of the world's most densely populated cities in the world, housing 42.857 people on each square kilometer. Metro manila houses almost 13.3 million people, with reporting up to 40% living in slums. The Baseco area is located in the port area. It is also known as the Engineer's Island or Barangay 649. This area's is regarded as one of the biggest urban poor community in the Philippines, housing up to 59.847 people (2015, Phil. Statistics Authority). Over the last 30 years' people moved from other poor areas, due to forced relocation and financially driven to Baseco. People in the Baseco area live on sea level, whenever there is high tide, a lot of houses are flooded. The families live in an area with limited access to medical facilities. The main source of income is scavenging of plastics, garlic peeling, metal and charcoal production. The average income for garlic peeling (reported by locals) is € 4 after deducting tax, therefore, providing for daily food is the main short-term goal for locals. There are very little latrines, sanitation nor sewage, creating major health problems. The Delpan area is located around the evacuation center. The area is a slum known with similar problems as the Baseco. The last years is has been in the news with repeated fires in the slum, forcing people to live on the street.



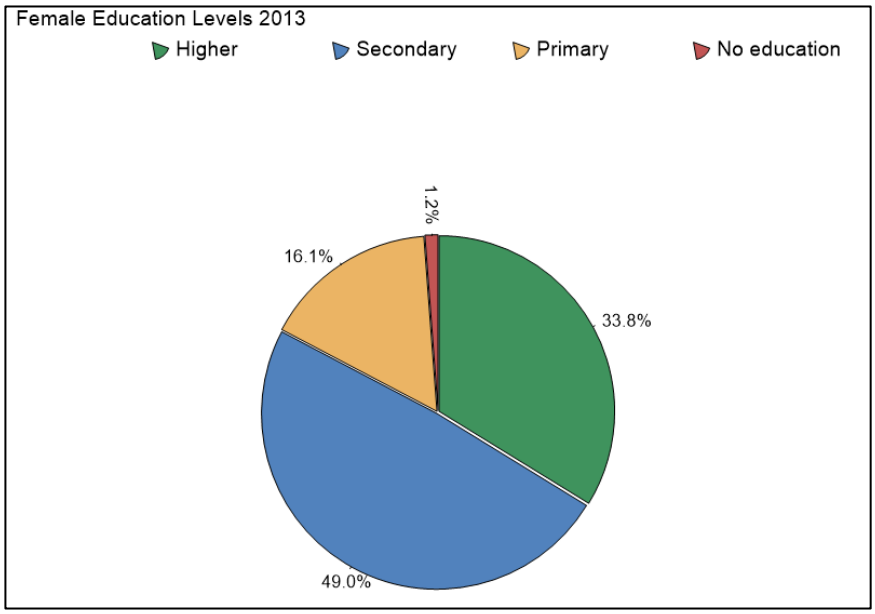
Satellite map of the Baseco area (Google Maps)

Due to the poor living conditions and low socio-economic situation the health of the children is poor. Up to 45% stunting is reported in the poorest 20% families, compared to 13% in the richest 20%. The latest survey in 2013 showed up to 7.9% childhood wasting. Next to that 35% of the children under 5y has an anemia. The under 5 mortality is declining but remains 28 per 1000 live births, meaning every year around 65.000 children die before the age of 5. A big part of this is due to treatable diseases, as pneumonia, gastroenteritis and tuberculosis. National programs have been made to improve the health of the Philippine people, incorporating the Global 2025 nutrition targets, with the aim of 40% reduction in stunting, 30% reduction in low birth weight, no increase in childhood overweight, increase the exclusive breastfeeding up to 50% and reduce and maintain childhood wasting less than 5% (WHO– Philippines; www.who.int/nutrition/global-target-2025; www.unicef .org/infobycountry/philippines _ statistics.html).



Development of Childhood underweight, stunting, wasting and overweight percentages in the Philippines (WHO 2015)

Socially, school attendance, mainly secondary school attendance is low, mainly in poverty-stricken areas. Overall, up to 17.3 % of the girls reached primary education levels or none. Partly due to the necessity of family income, with child labor up to 11%. Parents have to choose providing for food or sending their children to school, as up to 19% of the people in the Philippines earn less than $1 per day. Of the teenage girls, up to 8% already has given birth before the age of 18. Child marriage is common, up to 2% before the age of 15 and 15% before the age of 18 (UNICEF 2015).



Female education levels evaluated in 2013 (WHO 2015)

Medical mission 2017

The team stayed at Centro el Salvador, barangay 105 in Tondo, which is the main building run by Bless the Children Foundation. The day trip to the evacuation center in Delpan took around 15 minutes.

This sixth medical mission of MCC in the Philippines was organized in close collaboration with Bless the Children foundation, headed by Eunice Cheng Chua, Executive Director, and with World Experience Philippines, headed by Juliette Kwee, Executive director.

The Dutch team consisted of 10 members: the organizing leader Yvonne Verdonk (neonatal nurse), medical leader Roelof van Ewijk (pediatric resident), Hanneke Wennink (pediatrician), Anita Smith (child youth nurse), Arie Jan Vos (Board member, Ministry of internal affairs), Marlies Roosen (dentist), Merel Greeven (general practitioner, resident), Eelco Kuipers (Management trainee), Sientje van der Heijden (Medical doctor) and Mariska Jansman (paediatric nurse). We are grateful for the support of 2 members, who unfortunately could not join the mission.

Technical equipment, toothbrushes, children's clothes and other supplies were brought from the Netherlands by MCC team members. The medication was ordered at a local generic drug company. A container with extra medical supplies will arrive at the local nurse one month after the mission.

The Philippine – Dutch collaboration (Bless the Children [grey], World Activity Philippines [black], Medical Checks for Children [white]

The children we checked at the local evacuation center in the Delpan Area for the second time. This ground floor of this 5-story building was used for the checks. There was a main area where the blood picking, the medical check and the pharmacy was located. A separated area was made for the feeding of the children, which was arranged by Bless the Children. In 2016 a local food program was started which supports 200 children in daily food intake. Children in the food program are monthly measured and growth is evaluated.

For all the MCC team members the Baseco slum tour, headed by Tessie and Nympha, provided the context of this year's medical mission. The tour was a unique experience, giving insights in the hard living and working conditions of the marginalized scavenger families.

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

- Selection of patients and caregivers in the nearby communities;
- Facilitating board and lodging for all MCC team members at Centro Salvador;
- Prior announcement of the medical mission in the location;
- Guiding patients and facilitating transportation to local clinics / hospital for further diagnostic examination and critically ill admittance;
- Making copies of all necessary paperwork and administrative support;
- Giving support in ordering and delivering extra medication during the medical mission;
- Giving support to the MCC team during the medical mission;
- Organizing specific focus workshop on pediatric asthma;
- Arranging the communication and collaboration with the local hospitals for medical follow up.

The Philippine team consisted of around 30 volunteers/translators making the mission a great success. The MCC team was again very happy with the sublime organization of the local team. Great compliments and special thanks go to Conny and Eunice for the excellent follow up of the 2016 malnourished and special cases, who are followed-up with great care, precision and detailed reports via internet contacts all through the year. After our mission in 2016 a local food program was started at the evacuation center, providing for the malnourished children. The food program of Bless the Children now extends to 3 locations supporting more than 600 children. The program provides for feeding of malnourished children. With the aim of sustained growth after the food program Bless the children started cooking classes with the mothers of malnourished families providing the knowledge for and experience of healthy food.

We are very happy with the support of the World Activity Philippines. The World Activity Philippines is an organization focusing on empowerment of people in the slum area, offering jobs within their organization. World Activity Philippines (WAP) is an intermediary for everyone who wants to add meaning to their travel, work or study in the Philippines. It offers assistance and local support that will guide everyone who wants to discover and experience life in a different country and culture. One of their main activities are slum tours, where local people, themselves living in the slum, show people around Manila and its slums, also known as 'Smokey Tours', referred to the landfill Smokey Mountain, which existed until 2015, next to Barangay 105. In the last year World Activity Philippines started focusing on health care. Money earned with Smokey Tours goes back into society investing in a healthcare center in the Baseco. We experienced great enthusiasm by the Smokey Tours employees together. The request was to train the health care workers in basic knowledge on child growth evaluation and child health promotion. During the mission we transferred as much knowledge as possible.

During the mission we were able to contribute to the capacity building of Bless the Children. We were very happy with the continued support and mutual learning process with Conny. During the mission we were very happy to welcome Nova, who already was a full member in the blood sampling process, as a new nurse in the Bless the Children foundation. Also, time and effort were put in place to train Michael and Angelique in the blood sampling with the aim of self-sustaining possibility of the health checks for the local children. Furthermore, we trained the local volunteers at the weighing and measuring station, who were already known with cut-off values, to work with the WHO growth charts, as we came to realize that visualizing growth is of major importance to understand wasting, stunting and being underweight. We also thank all the other volunteers who showed great devotion and interest in the health of the children, and contributed to the improvement in local child health.

This year we were able to extend the medical mission with a dentist mission. As in the other missions all children were trained in the brushing of their teeth and good dental care. Every child was given a new toothbrush. Supplies for the dentist mission were provided by Bless the Children. Children with pain due to

the caries, as well as children with extended caries in their secondary teeth were selected for treatment. In cooperation with the local dentists, who are working weekly at Centro Salvador, Marlies, our dentist of the MCC volunteers, was able to treat 235 children.

We continued with our focus on asthma, the most common chronic disease affecting the children in this landfill. From 2015 onwards Noor Rikkers, pediatric pulmonologist, contributes in knowledge and coaching of asthma care, addressing the challenges in treating pediatric asthma in developing countries. The asthma project already serves multiple children in chronic asthma care, with regular follow up at the local nurse, Connie. During the mission an interactive, lively workshop was held by the local nurses Connie and Nova, combined with Roelof van Ewijk, for the children with asthma and their parents. Basic knowledge about the pathology, need for chronic treatment and different kinds of medication was explained and prescribed during the workshop. Routine assessment will be done by Conny, local nurse at Centro Salvador.

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

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 (hemoglobin)
4. Medical consultation
    - Discussing social, psychological and medical problems
    - Physical examination
    - Discussing food and fluid intake, handwashing and tooth brushing
5. Distribution of medication (pharmacy)
6. Education on hygiene, tooth brushing (a tooth brush was given to each child) and hand washing
7. Food station
8. Dentist for selected cases

Data collection

Each child was accompanied by a caretaker, was registered by the local team of volunteers. Name, age, address, telephone number and basic complaints were written in English on the chart. Anthropometric measurements were recorded, and a finger prick sample was taken to determine the hemoglobin (Hb) concentration. Each family was given a medical consultation by a medical doctor to discuss current issues of their children. The child was thoroughly 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 nurses and volunteers, which spoke English fluently, were assigned as translators and often were co-running the different medical carrousel stations with the Dutch team members. At the Pharmacy, the children received medication prescribes by the doctors. The first dose was given instantly together with explanation by how to use the medication. Then the children go to training station of hand washing and tooth brushing. Every child received a toothbrush. The last station they received a free meal. At the end of the MCC carrousel, the data of the checked children were put in the MCC database, added on by a specific file for follow-up patients.

Results: medical and dental

Number of children

During the mission week, the MCC team checked 7 days on 1 location, at the Delpan evacuation center. In total we checked 884 children (table 1).

Date	Children
7-10-2017	65
8-10-2017	127
9-10-2017	152
10-10-2017	145
11-10-2017	143
12-10-2017	102
13-10-2017	150
Total	**884**

Table 1: *Number of checked children per day*

The children were preselected by local nurses and health workers. The high-risk group of young children under the age of 5 years was strongly represented, as well as a high percentage of vulnerable children with birth defects, malformations, handicaps and disabilities. Disabilities included emotional, developmental and physical impairments.

Aside from the more basic healthcare needs catered for by the MCC community health program, the team's effort was focused on the children with special needs and on children with asthma.

Age and gender distribution

Due to the high risk of mortality and morbidity of children under the age of five years, the focus of MCC is on checking vulnerable young children. As earlier years this goal of selecting young children was reached with 50,5% under the age of 5 (N=447), including 8.9% under 1 (N=79).

	Boys		Girls		Total	
	N	%	N	%	N	%
Age < 1 year	38	48,1	41	51,9	79	8,9
Age ≥ 1 year / < 5 years	186	50,5	182	49,5	368	41,6
Age ≥ 5 years / < 10 years	153	47,7	168	52,3	321	36,3
Age ≥ 10 years	58	50,0	58	50,0	116	13,1
Total	435	49,2	449	50,8	884	

Table 2. Children per age group per location and gender

Prevalence of main diagnoses

The main alleged causes were gastrointestinal, dermatologic and dental. Acute worm infection (N202;17.2%) and diarrhea without dehydration (N12; 1,0%) were the main gastrointestinal causes. Dermatomycosis (n=17; 1.5%), Impetigo (N=13; 1.1%) and infected wound (N16; 1.4%) were the main dermatologic causes. Respiratory causes were only diagnosed when symptoms on the spot were identified, 14 children showed signs of asthma (1.2%), 7 children presented with a pneumonia (0.6%), in 1 child tuberculosis was suspected and results will follow, in 4 children (0.3%) tuberculosis was diagnosed by X-thorax. They were send to the local hospital for tuberculin skin testing and necessary treatment. Caries was present in 491 children (42.4%), of which 192 (16.6% of all children) suffered caries with pain.

Tractus	Diagnosis	N	%
General	None	195	16,8%
	Vitamin deficit (clinical signs)	1	0,1%
	Syndrome n.o.s.	3	0,3%
Respiratory	Pneumonia (clinical diagnosis)	7	0,6%
	Tuberculosis (clinical diagnosis)	1	0,1%
	Tuberculosis (confirmed by X-thorax)	4	0,3%
	Bronchitis	3	0,3%
	BHR/Asthma	14	1,2%
	Other…	34	2,9%
Gastrointestinal	Dysenteria	2	0,2%
	Dehydration - acute diarrhoea	2	0,2%
	Diarrhoea without dehydration	12	1,0%
	Obstipation	1	0,1%
	Active worm infection	202	17,4%
	Other…	3	0,3%
Ear-Nose-Throat	Otitis media acuta / n.o.s.	13	1,1%
	Otitis media with effusion	30	2,6%
	Otitis externa	8	0,7%
	Adenotonsillitis / tonsillitis	6	0,5%
	Hearing impairment	1	0,1%
	Other…	3	0,3%
Dental	Caries n.o.s.	299	25,8%
	Caries with pain	192	16,6%
Dermatology	Wounds n.o.s.	3	0,3%
	Eczema n.o.s.	6	0,5%
	Dermatomycosis	17	1,5%
	Impetigo / furunculosis	13	1,1%
	Scabies	4	0,3%
	Wounds infected	16	1,4%
	Burn wound (fresh)	2	0,2%
	Other…	11	0,9%
Neuromuscular	Psychomotoric retardation	3	0,3%
	Hypertonia	1	0,1%
	Hypotonia	1	0,1%
	Epilepsy	1	0,1%
	Other…	4	0,3%
Cardiology	Physiological murmur	2	0,2%
	Pathological murmur (suspected)	2	0,2%
	Other…	6	0,5%
Eye	Refractory problems	1	0,1%
	Keratoconjunctivitis	2	0,2%
	Other…	1	0,1%

Endocrine	Diabetes	1	0,1%
	Other…	2	0,2%
Urogenital	Inguinal hernia	4	0,3%
	Urinary tract infection	2	0,2%
	Other…	3	0,3%
Nephrology	Chronic kidney pathology (suspected)	1	0,1%
	Other…	3	0,3%
Surgery	Hernia (umbilical, epigastric, cicatric)	4	0,3%
	Other…	2	0,2%

Table 3. Diagnosis made during the medical checks (frequency and percentage)

Treatments

Most of the ailments could be treated on the spot and consisted mainly of multivitamins (N = 353; 39.9%), preventive antiworm treatment (n=366; 41.4%), active antiworm treatment (N = 207; 23.4%), antibiotics (N = 47; 5.4%) and creams (N = 50; 5.6%).

Treatment	N	%
None	178	20,1%
Iron child	17	1,9%
Mother iron	2	0,2%
Multivitamins	353	39,9%
Preventive antiworm treatment	366	41,4%
Acute worm treatment	207	23,4%
Malathion (Lice)	1	0,1%
Ivermectine (scabies treatment)	3	0,3%
Scabies soap	1	0,1%
Amoxicilline	27	3,1%
Claritromycine/erythromycine	13	1,5%

Metronidazol	1	0,1%
Co-trimoxazol	6	0,7%
Eardrops	16	1,8%
Eyedrops	4	0,5%
Nystatine	1	0,1%
Hydrocortison cream	9	1,0%
Dactarin cream	15	1,7%
Dactacort cream	2	0,2%
Fusidin cream	24	2,7%
Flammazine	0	0,0%
Neutral cream	4	0,5%

Table 4. Treatment given (frequency and percentage)

Follow-up

During our week of checks we completed a file of follow-up patients, who will need additional care, be it in further diagnostics or treatment. A total of 36 children got a short description of their problem and suggestions in writing for first steps to take in the follow- up effort. To further prioritize the urgency of the different problems/cases, the list was coded in 3 different colors for triage.

Follow-up	N	%
None	483	54,6%
Dentist	247	27,9%
Specialist in hospital	15	1,7%
Revisit	10	1,1%
X-thorax	2	0,2%
ECG	0	0,0%
Urine + Kidney function	2	0,2%
Bloodtest after 3 months	2	0,2%
International organisation	0	0,0%
Other (total)	178	20,1%
Other: feeding program	135	15,27%
Other: astma program	23	2,60%

Table 5. Follow up plan for checked children

As in former years of our collaboration, Bless the Children will assist these families with children in the follow-up in terms of medical and surgical assessments and interventions. Bless the Children and MCC will both make efforts to look for additional funds for the priority cases in the short term and possible structural funding opportunities for long term support of the after care.

Dental referrals

In total 247 children (27.9%) were referred to the MCC and Filipino voluntary dentists, in total 235 children were treated on the spot, all visitations and treatments free of costs. The criteria for referral to the dentist were:

- primarily children under seven and caries with pain accompanied with wasting, stunting and/or underweight, or

- children above seven years old with caries with pain, or
- children with abscess

Asthma

Childhood asthma is often under–diagnosed and under–treated in settings in which other illnesses such as pulmonary tuberculosis or viral lower respiratory tract infections may result in wheezing. Apart from atopic wheezing non-atopic wheezing may even be the most predominant forms of asthma in children in low income countries. A number of negative environmental factors in Tondo have severe impact on asthma control. Children in general, and children with asthma in particular, are sensitive to the adverse effects of indoor and outdoor air pollutants, including ozone, nitrogen, oxides and respirable particular matter. A growing number of studies also show that children living in environments near heavy traffic, dumpsites and landfills have increased risks of new-onset asthma, asthma symptoms, exacerbations, school absences and asthma- related hospitalizations.

There are a number of challenges to providing optimal management of childhood asthma in such settings. These include access to care, ability of healthcare workers to manage asthma, availability and affordability of inhaled therapy, environmental control of potential triggers, education of healthcare providers, the parents and the public, and cultural or language issues. This year's medical mission continued with our previous started focus on asthma, educating health workers and patients/parents. Educational intervention was delivered to more than 15 children and their parents in an inspiring interactive way by Conny and Nova. Spacer devices for the effective use of medication were also provided free of costs, as was the medication.

Apart from the workshop on asthma management 12 selected children with severe asthma joined a clinical program at Centro Salvador that provided free asthma medication, including the costly inhaled corticosteroids (ICS) for a 12month period. Regular scheduled clinical visits including peak flow measurements were set up.

Although the WHO essential drug list includes inhaled corticosteroids (ICS) and bronchodilators, spacers are not listed. ICS are very expensive and almost unaffordable for the parents. There is a need to look into strategies with respect to the affordability of first line controller therapy with ICS in the future.

Growth abnormality, feeding 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 years at increased risk of death. Literature from the Philippines shows 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. 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. Also, charcoal burning, carbon monoxide, 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 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 (WHO growth curves):

- **Underweight** = weight for age at or under the third percentile of the reference population, only children up to 10 years old. This is an indicator of malnutrition and disease.
- **Wasting** = weight for height at or under the third percentile of the reference population, 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, 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.

The prevalence in the checked high-risk population of stunting was 42,65%, wasting 6,35% and underweight 31%. SD values from the WHO were calculated.

	N	%
Underweight	274	31,00%
Stunting	377	42,65%
Wasting	56	6,33%
Overweight	5	0,57%

Table 6. Malnutrition and overweight prevalence among all children per geographical location

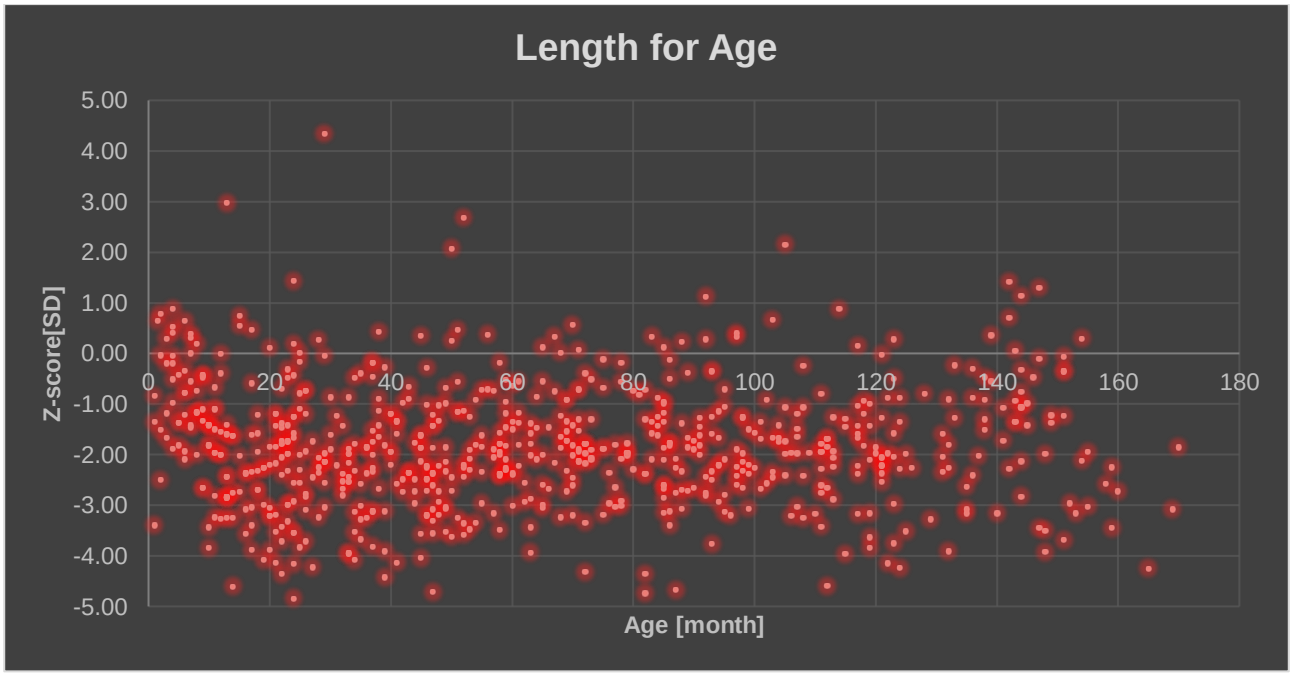


Figure 1. Length for age, age in months correlated with the SD value

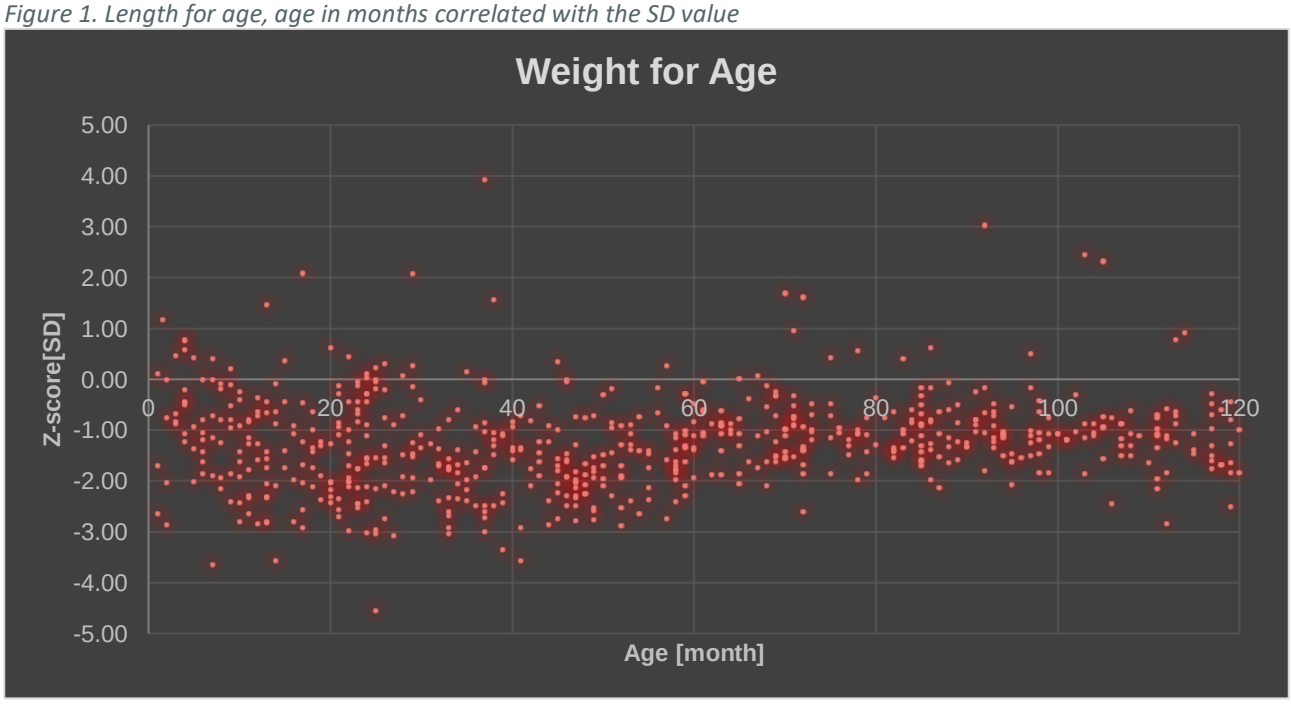


Figure 2. Length for age, age in months correlated with the SD value

On the locations 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. On the other hand, overweight is also on the rise and should be monitored. Obesity in childhood in preschool age ranges at 3.3% in the Philippines and is a perennial problem of highly urbanized cities with fast-food chains and loss of national, rational diet. Ironically, nutritional stunting in early life has been associated with obesity in later years. Particular longitudinal studies from the Philippines provide support for this hypothesis. The risk for obesity should be addressed by promoting: exclusively breastfeeding, avoid added sugars and starches to formula when used in feeding, promotion of adequate micronutrient intake, fruit and vegetable intake, restriction of energy dense food and soft drinks intake, promotion of active life style and limiting TV/Computer viewing. The children showed high prevalence of all three types of malnutrition. Bless the Children offers an effective feeding program with healthy foods supplemented with multivitamins and iron.

Children with parents who comply with bringing them to the center daily showed very good improvements in term of growth in height and weight, as well in hemoglobin levels with the addition of iron in their diet.

We treated all children with growth abnormalities with multivitamins for 3 months and spread the knowledge to the caretakers 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 donated by Bless the Children, 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 handwashing, 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 show that 73% of all children are breast fed up to the age of 6 months, and up to an average of 20 months. Most probably the children are breast fed long time, since this is a way of birth control.

Anemia

Anemia is the most prevalent micronutrient disorder. A study in 2006 by A. Kreissl showed a prevalence of iron deficient anemia in Filipino children, aged 6 months to less than a year, of 56.5%. For children of all ages the prevalence was around 31.8%.

Anemia	N	%
No	688	77,92%
Yes	166	18,80%
Not measured	19	3,29%

Table 7. Number of children with and without anemia (WHO cut off values)

The prevalence of anemia in the group of children we checked this year in Tondo was 18,8% and less than the first year's check in 2012 (45% at the time). One of the main reasons could be the fact that a considerable number of children we checked are or were already enrolled in the local feeding program, which includes vitamin supplementation, iron enriched diet and anti-worm treatment. Other possible attributable effects of environmental changes, dietary changes and other changes in the communities cannot be excluded. Anemia is largely attributable to poor dietary quality (diets low in key nutrients) and high disease loads.

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.
We treated the children with anemia (and their mothers if they were breast feeding) with multivitamins if they were underweight, stunting or wasting or with possible underlying infections.

If there was only anemia, iron supplements were given for three months. Four children showed a hemoglobin level below 5.0 mmol/l and will need a recheck after 3 months. If the low level persists further investigations for underlying cause will be done.

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). Iron from animal foods, such as meat, is usually better absorbed than from vegetable origin foods such as rice. A settlement would be a mixture of both sources of food to reduce the differences.

Worm infections

In the locations checked, the overall prevalence of worm infestations was higher than last year. In 2015 the prevalence of active worm infection was about 23,4%, this year 24% (N=207) of the children were treated for active worm infection during three consecutive days therapeutically. Because caretakers actually saw worms in the stool or because of clinical signs. Prophylactically we treated 366 children (41,4%) with one tablet of Mebendazol, because they did not have a deworming treatment within previous 6 months.

A comparable group of children were already enrolled in a local bi-annual anti-worm campaign by either Bless the Children or school programs comparing to 2016 (27% vs. 30%). Soil-transmitted worms, including roundworms, hookworms, and whipworms, are common in tropical and subtropical areas, and particularly affect children in low- income areas where there is inadequate sanitation. Heavy worm infection is associated with malnutrition, poor growth and anemia in children.

Since May 2015 there is a lively discussion within the academic world about the benefits of deworming of whole countries and communities.

The World Health Organization currently recommends that school children in endemic areas are regularly treated with drugs which kill these worms. The recommended drugs are effective at eliminating or greatly reducing worm infections, but the question remains whether doing so will reduce anemia and improve growth, and consequently improve school attendance, school performance, and economic development, as has been claimed.

In a recent Cochrane Review, researchers examined the effects of deworming children in areas where intestinal worm infection is common. After searching for relevant trials up to April 2015 they included 44 trials with a total of 67,672 participants and an additional trial of one million children (Taylor–Robinson et al. 2015, Cochrane libraries). Their research shows:

- In trials that treat only children known to be infected, deworming drugs may increase weight gain (low quality evidence), but we do not know if there is an effect on cognitive functioning or physical well-being (very low-quality evidence)
- In trials treating all children living in an endemic area deworming drugs have little or no effect on average weight gain (moderate quality evidence), hemoglobin (low quality evidence) or cognition (moderate quality evidence).

For now, MCC holds on to its worldwide protocol of advising and implementing the bi–annual deworming program in endemic populations, as we have no sound information how many children are actually infected. Ways of improving personal hygiene and sanitation through handwashing, 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.

Respiratory diseases

In total 81 children (5,4%) suffered from respiratory diseases such as bronchitis (N=3), asthma/viral induced wheezing (N=14; 1.2%), pneumonia (N=7; 0.6%) and tuberculosis (N=5; 4%).

Respiratory	Pneumonia (clinical diagnosis)	7	0,6%
	Tuberculosis (clinical diagnosis)	1	0,1%
	Tuberculosis (confirmed by X-thorax)	4	0,3%

	Bronchitis	3	0,3%
	BHR/Asthma	14	1,2%
	Other…	34	2,9%

Table 8. Prevalence of respiratory problems

Diffuse wheezing suggests bronchospasm and is most commonly caused by viral illness (upper respiratory infection with reactive airways, viral pneumonia, or in children under 2 years of age bronchiolitis.) Obstructive lung disease such as asthma may be associated with prolonged expiratory phase, hyper resonance on percussion, and hyper inflated chest.

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. 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 results in increased risk of recurrent middle ear infections.

Fourteen children were diagnosed with asthma. On the spot we treated them by administration of salbutamol by metered-dose-inhaler with spacer or by nebulizer, while monitoring them clinically with portable saturation devices. For the more severe cases we started a three-day rescue treatment with oral corticosteroids (prednisone 1-2 mg/kg/day) additive to the salbutamol oral reliever treatment.

Twenty-three children had a medical history or presentation with asthma. All parents were invited for the asthma program during the checks or after the checks. After educating the parents, the children were evaluated whether inhalation corticosteroids were indicated. Around 10 children started with Flixotide after evaluation, others were advised to come to the clinic for diagnosis when symptoms are present. The children that joined the asthma program will be evaluated by the local nurses.

Cardiac problems

Several children were seen with cardiac conditions. Three children were seen who were treated for rheumatic heart disease, local follow through a pediatric cardiologist was already arranged. Two children presented with congenital heart disease. One child is known to have a severe complex heart, with a dextrocardia, ebstein's anomaly, absent pulmonary artery and MAPCA's. His current saturation was low. Medication was prescribed by a local pediatric cardiologist. Social support will be given by Bless the Children. One child is known with a subvalvular stenosis with Noonan syndrome. His condition is stable with medication, however yearly checkup by the local pediatric cardiologist is advised. As the last check was more than 2 years ago, follow up by Bless the Children will follow to support the family for the yearly cardiac evaluation. The other child has a ventricle septal defect, using just little medication. As this cardiac condition is well operable MCC will look into possibilities to possibly supporting surgery through the Emile Nieuwendijk Fund. The application progress with the Emile Nieuwendijk Fund will be started.

Skin diseases

Skin disease was a common clinical finding (N=119 (12%)) with the more specific clinical diagnoses: (infected) wounds (N=17 (2%), eczema (N=9 (1%)), dermatomycosis (N=7 (1%)), impetigo/furunculosis (N=37 (4%)), scabies (N=25 (3%)) and other skin diseases (N=19 (2%)).
Infected wounds were treated with fucidin cream or with oral antibiotics. Hydrocortisone cream was given for eczema and for different forms of dermatitis. Antifungal cream (sometimes in combination with hydrocortisone) was given for fungal infections (dermatomycosis). We saw many children with scabies. Ivermectine is the medicine of first choice. This medicine was up to this year not available. There is now an initiative from a local pharmacist to produce Ivermectine for a small price so that it will be available and affordable to the children of Tondo. Advices were given how to treat clothes and bed linen for scabies.

Dermatology	Wounds n.o.s.	3	0,3%
	Eczema n.o.s.	6	0,5%
	Dermatomycosis	17	1,5%
	Impetigo / furunculosis	13	1,1%
	Scabies	4	0,3%
	Wounds infected	16	1,4%
	Burn wound (fresh)	2	0,2%
	Other…	11	0,9%

Table 9. Prevalence of skin diseases among all children

Neurological problems

Some children with neurological and developmental disorders were checked with diagnosis of psychomotor retardation (N=9; 0.9%). Problems which were seen were hypertonia (N=2; 0.2%), hypotonia (N=2), epilepsy (N=1; 0.1%). One child was seen with a febrile convulsion, follow up was arranged through a local pediatrician.

Neuromuscular	Psychomotoric retardation	9	0,9%
	Hypertonia	3	0,3%
	Hypotonia	2	0,2%
	Epilepsy	1	0,1%
	Other…	4	0,3%

Table 10. Prevalence of neurological problems among all children

Bless the Children has (unlike many community care centers) put a lot of attention to children with developmental and neurological disorders. Tuberculous meningitis still is a common problem in the Philippines with often long-term disabilities. Other children with disabilities are the ones after difficult births (poor quality of perinatal care) and victims of accidental injury. Various factors such as poverty and malnutrition due to Vitamin A, iron or iodine deficiency magnify the often-devastating effects on these children. Long term sequelae such as hydrocephalus need to be addressed by surgical interventions with VP drains, and revisions due to (possible) infection and/or growth. Congenital or non-infectious disease such as epilepsy warrant a treatment with ongoing medication.

Locally, it depends upon location whether some facilities are available to support parents with children with a developmental delay. Special schools are available for minor developmental delay. We saw three children where, due to the severity or the aggression of the child, the mother was 24 hours a day devoted for the support of her child as no social network or facilities are there to support families with these children. Bless the children strongly engages in building up community rehabilitation services and social inclusion of the children with disabilities, as they are locally called and loved: ‘special children’.

Dental problems

In general, high caries prevalence was found: 491 children of which pain was accompanied in 192 (16.6%) of the children. This percentage is remains high compared to previous years.

Fluor is not added in the drinking water in Manila. The prevalence of caries was mainly due to either deplorable dental care and/or the intake of sweets and sugary beverages. MCC was grateful to the local Philippine dentists who were working with our dentist side by side. We could directly refer the children to her after the medical check, supplying additional painkillers. In total 235 children were seen and treated by the dentists.

We stressed the importance of proper dental hygiene and the banning/limitation of sugary products, beverages and fast food to the children, their caregivers and their teachers. We are aware of the fact that sweets are (globally) given by caretakers to please the children in their harsh situation. Therefore, many small changes need to be made, starting with structured oral health promotion activities within the Barangays. On the medical checks, volunteers had prepared several age–specific health promotion activities teaching proper oral and hand hygiene and handing out colorful toothbrushes.

Results: Local empowerment

Education and creating sustainability

The main aim of Medical Checks for Children is to educate and empower our collaborating locally working organization. Each year time is provided for education of parents, volunteers and local health and social workers. Over the last years there has been a consistent team of Philippine volunteers during the checks. This provides for the possibility to build upon knowledge from last year. Over the last year's workshops have been done on several subjects, such as gastroenteritis, pneumonia, asthma, general child development and child malnourishment. This year employees of Bless the Children and Smokey Tours joined us during the mission for support, wherein moments were creating for education.

Before the checks local demands were discussed with Bless the Children, at the first day of the checks a combined program was made how to build upon the steps of last year. For the Smokey Tours volunteers this was the first year's mission. We started working with them on the evaluation of weight, height and anemia. Time was made for explanation of the background behind the MCC carrousel. Identification and recognition of local problems is step one in the development of child health monitoring. The aim in the first days was to explain how to do the measurements. In the days following local volunteers were trained in the interpretation of the values and to discuss the background. With the staff of World Activity Philippines / Smokey Tours time was made for evaluation and discussion, looking for a sustainable network together with Bless the Children. With the knowledge, skills and passion of Bless the Children we hope that World Activity Philippines can be supported in professionalizing their health center and adequate child health care could spread within the slums.

Time was made on every station in the carrousel to discuss child health. As one of the most important tasks of MCC is to encourage health education to the caregivers and 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. Repeatedly, hygiene, handwashing, routine deworming, dental care, eating habits and nutritious food were discussed with parents. This provides an effect for the parents, discussing these subjects empowers them in possibilities to improve child health, as well for the local volunteers, as they were actively involved in discussions in local possibilities how to improve local habits in these major subjects.

As this was the sixth collaborative mission with the Bless the Children foundation previous to the mission we discussed how to be of support for the Bless the Children foundation. We discussed which efforts could be made to provide for improved sustainability of the local organization. The last years Bless the Children has already shown to be able to actively check children year-round, wherein Conny, the local nurse, provides for the medical context and two others were already familiar picking blood for the evaluation of anemia. Besides checks, health intervention, the feeding program runs well with more than over 600 children being fed daily. Within the feeding program children are weight each month. Local experience is that children after the feeding program fall back into the previous eating pattern and losing weight again. Therefore, Bless the Children incorporated cooking classes with mothers of malnourished children. Besides learning about healthy and nutritious food, it provides a platform for parents to connect and empower each other fighting the battle against malnourishment.

As mentioned, during the absence of Medical Checks for Children the Bless the Children foundation is well equipped in the evaluation of child health. Together a plan was made to train Nova as a second nurse in the Bless the Children foundation and to train two more employees of the Bless the Children foundation for the blood picking. All together with the aim of increasing the capacity to independently perform medical checks for local children. Nova and Conny showed to be a great team in supporting and evaluating the children adequately. They independently evaluated children and supervision was provided if necessary. Other

volunteers showed to be devoted in the child care, easily picking up MCC practices and devoting their knowledge and love to the children.

As Bless the Children is well equipped to evaluate children and identify child health problems we discussed how to go one step further. We discussed to train Conny and Nova further on child growth evaluation, providing growth charts and working towards a standardized growth evaluation locally. In the future, standardized moments of growth evaluation could help in preventing growth problems by early detection of underweight, wasting and stunting. Overall the child health in the first six months is quite well in children as breastfeeding is a free source of nutrition. However, providing for an environment where good nutrition and adequate health care is provided is a hard job for parents living in the slum. Early intervention strategies might help fighting these problems. A joint effort was made this week, with extensive training in growth chart evaluation.

Conny provided for continuation of the asthma class. With little support she provided for an extensive class for parents of children with asthma. Another group of children were started this year on inhalation corticosteroids, which will be checked upon in the upcoming months by Conny and Nova. Continued support of Noor Rikkers, a pediatric pulmonologist, will help to monitor and continuously learning curve for Conny and Nova.

Conclusion and recommendation

Conclusions

The results above show the success of the efficient implementation of health services for the children in Tondo by Bless the Children and World Activity Philippines. MCC is positively impressed by the steep learning curve of the nurses in charge of the multitude of community health projects and the upscaling of the offered medical services and food programs. During the week the volunteer staff impressed us with their knowledge, skills and ownership of the medical carrousel and sound interpretation of the medical findings.

Bless the Children

Regarding the sixth-year collaboration with Bless the Children:

- Bless the Children is familiar with the MCC carrousel and is able to perform checks for children up to more than basic pediatric health care whole year around;
- Bless the Children has shown to be able to run a sustainable feeding program and to provide with compassion and care for the local children;
- Bless the Children has shown to carefully follow-up identified children and families whom need support on social, medical or other levels;
- Bless the Children has shown to endorse the importance of extending their capacity for the local child health care, providing a minimum of 2 nurses, multiple health and social workers;
- The management of Bless the Children has shown to anticipate in creating a sustainable organization, wherein positions can be taken whenever a staff member is not able to perform his or her duties;
- Bless the Children has shown to be able to run a nurse-led asthma program, treating children with this chronic disease;
- Bless the Children has the local and international network providing for local empowerment, child's and family care, but also for adults, working towards life in a better living environment and higher living standards in the slum;
- Bless the Children has shown to be able to empower other local organizations and to share responsibilities;
- Bless the Children always acts with love, care and great devotion.

World Activity Philippines – Smokey Tours
This year was the first year for WAP as an active partner. World Activity Philippines has started with a small health care service in the Baseco area. Their goal is to provide for 50 – 100 families. They have already started with a feeding program. We welcome their enthusiasm and steep learning curve. We see that they have the potential to address basic child health care issue. As WAP is involved in multiple working area's future discussions will be held to see whether plan for continuing future collaboration with Bless the Children and Medical Checks for Children. We hope that within this partnership Bless the Children will be able to provide for knowledge and continuously learning in the upcoming year.

General recommendations and future needs

- Continuation of the community health services which already take in place at Bless the Children: such as the sponsorship program (more than 1000 children already), nutritional program, health program and the special medical, dental and surgical projects.
- Continuation of health promotion by Bless the Children, with shifting focus towards preventive structural evaluation of child growth in the local area. Efforts towards a system wherein children will be evaluated following a structural program. Evaluation of growth, put in growth charts, and health promotion from and if possible before birth is the next step in fighting malnutrition and stunting. Medical Checks for Children will have to support the development of the material for this structural program.
- As dental care is well provided at Centro Salvador by Bless the Children and local dental mission are well organized we would recommend to have the dental check and treatment done next year solely by local dentists. Dental health promotion remains an important focus.
- Continuation of the asthma program by Bless the Children in collaboration with Medical Checks for Children with the aim of up to 50 children in the asthma follow-up program by the end of 2018.
- Continuation with the community cooking program for mothers by Bless the Children with children in the food program, for improved understanding of nutritious food, connecting of these families and providing a base for sustained growth improvement.
- Organizing a local meeting in the upcoming year, with local pediatric pulmonologist air pollution and its risks for asthma and respiratory infections, to extend the network around asthma and increasing awareness.
- Combining strengths of Bless the Children and World Activity Philippines, making it possible to start small for World Activity Philippines, as knowledge and if necessary other support could be provided by Bless the children. Connecting on the same goal for the children will provide a platform for the future in health in the slums.
- For World Activity Philippines the recommendation is to start with providing for a small group of families, wherein attention is given to child health. Combined effort could be made by organizing a medical check in the upcoming six months in the local area of Baseco for the children of the families World Activity Philippines is providing for.

For all of us, the future need is ongoing support and advocacy of child health. Children living in the slums are affected by severe environmental risks, such as air pollution, inadequate sanitation, disease vectors, chemical waste and injuries, additional to poor nutrition, stress, domestic violence and poor schools. Due to their cumulative high health risks they need all the support and advocacy they can get.

Final remarks

The 2017 medical mission in the Philippines was another rewarding experience touching the hearts of all the team members. Cooperation and collaboration with the local and Dutch teams remains exiting and inspiring.
It is stimulating to work with team members from different cultural backgrounds, exchanging ideas and learning together from the parents in such a friendly, warm and respectful way. As Ms. Euniche Cheng-Chua stated, we will have to keep on learning from the families living in the slum as they provide for us the

view on how life can be and how health and happiness should be treasured and fight for in every possible way.

The positive energy, sense of belonging and forming one caring team for the children in need touched everybody's heart. After six years we have not only become partners in health care, but solidified our relationship into lasting friendships. Special thanks go again to the dream team: Ms. Eunice Cheng-Chua and Ms. Connie, Ms. Nova, Ms. Juliette Kwee, and many others with whom MCC stays in regular contact throughout the year.

Marlies, Sientje, Yvonne, Merel, Roelof, Hanneke, Anita, Mariska, Eelco, Arie Jan