Medical Checks for Children

Medical Report
South Africa Swa Vana 2014

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January 2015

MCC Swa Vana 2014

I Introduction

From September the 21th until September the 26th, a Medical Checks for Children (MCC) team visited three locations near Hazyview in the northern parts of South Africa. Free of cost, the MCC team checked and treated 1137 children aged newborn until 18 years, with the focus on 0-12 years. The team consisted of Ines von Rosenstiel, paediatrician and medical mission leader; Miguette Jadoul, public affairs advisor and organisational mission leader; Jankees de Ridder, family physician; Gemma van Huijstee, family physician; Danielle de Jongh, youth health care physician; Winnie Scholtens, resident doctor; Martin van Nes, resident doctor, David Spitaels, infectious disease doctor; Jankina Lightvoet, neonatology nurse; Hetty Hessels, philanthropic consultant, and Jan Klingenberg, consultant.

Our host patron during the stay was Charmaine Krügel of the Swa Vana project, in partnership with the Dutch organization Kinderfonds MAMAS.
This was a first exploratory mission to this region in South Africa.
Technical equipment and some of the supplies were brought from Europe by the MCC team members. Most of the medication was ordered through a local pharmacy at Bubezi clinics, with the help of Jerry Sibisi and Hugo Tempelman.The ivermectine was kindly ordered by Paul van Hattum, hospital pharmacist in the Netherlands.

The cooperation with Swa Vana consisted of the following (amongst others):

- Prior announcement and preparations of the medical camp in the locations;
- Transfer of knowledge about expected diseases;
- Selection of locations and selected children;
- Giving full support to the MCC team during the medical camp.

The MCC team was delighted by the cooperation with Charmaine Krügel, her husband André and all their healthcare workers who helped us during this intense first medical camp.

We are grateful to all the care takers and community people for bringing the children and helping to conduct the program.
We are happy we got the opportunity to work with and to learn from all volunteers, translators and others who have helped directly or indirectly, despite their own obligations and holiday day.
And last but not least, we would like to thank the children and their care takers who came to the checks for their inspiring presence.

II Medical Checks for Children on location

During the medical checks, the children were checked following the MCC carrousel:
1. Registration of the child
2. Measuring height and weight
3. Blood test for haemoglobin
4. Physical examination
5. Giving medication and education about the correct use of it (pharmacy)
6. Education on hyginics and tooth brushing (a tooth brush was given to each child)

Data collection
Anthropometric measurements were recorded, and a finger prick sample was taken for determination of the haemoglobin (Hb) concentration.
Each child was examined by a Medical Doctor. History of illnesses in the preceding weeks was recorded. Specifically, caretakers were asked if the child had diarrhoea, an upper respiratory infection, vomiting, eating soil (pica), decreased appetite and/or weight loss.
They were also asked if their child received treatment for any of these, and if so, from where. The data of the children are saved and analysed through the MCC database.

III General information on the different locations

The medical checks were performed on six days at three different locations.

Program:
Day 1and 2 : Huntington
Day 3 and 4: Justicia
Day 5 and 6: Lillydale

At the different locations we checked children who were included in the Swa Vana program and other children from the villages.
We analysed the data to make a comparison as a group but we did not make a computer analysis on individual basis or on the ones included or excluded from the actual Swa Vana program (table 1).

Table 1: Number of checked children per day and geographical location

	21-09-14	22-09-14	23-09-14	24-09-14	25-09-14	26-09-14	Total
Huntington	159	210	0	0	0	0	369
Justicia	0	0	158	212	0	0	370
Lillydale	0	0	0	0	229	169	398
Total	**159**	**210**	**158**	**212**	**229**	**169**	**1137**

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

	Total		Huntington		Justicia		Lillydale	
	1137		Total= 369		Total= 370		Total= 398	
Age	**N**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
<=1 year	137	12%	35	9%	52	14%	50	13%
>1 en <5 years	274	24%	85	23%	79	21%	110	28%
<5 years	411	36%	120	33%	131	35%	160	40%
>=5 en <=10 years	543	48%	180	49%	181	49%	182	46%
>10 years	183	16%	69	19%	58	16%	56	14%
Gender								
Boy	542	48%	166	45%	184	50%	192	48%
Girl	585	51%	203	55%	181	49%	201	51%

IV Specific diagnoses and categories of ailments/treatment and referrals

1: Growth abnormality and malnutrition

(underweight: 2%(23)), stunting: 7%(79) wasting: 1% (15)

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 for mortality. Malnutrition is thought to account for one third of all deaths of children under five years of age (UN Millennium Developmental Goals).

Percentages of growth retardation are correlated with poverty, malnutrition, living conditions, hygiene and the prevalence of chronic diseases.

The major causes of malnutrition are poor feeding practices and/or lack of food. Adequate food intake and education programs addressing nutrious food need to be provided.

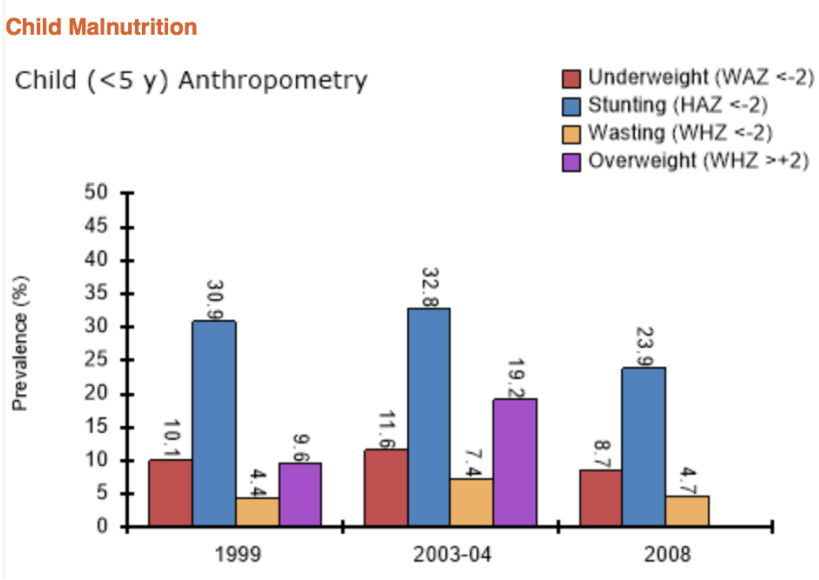
Therefore, we assessed growth abnormalities, measuring and weighing all children in a standardized fashion, using the following criteria:

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

Table 3: Disease prevalence among all children per geographical location

	Total		Huntington		Justicia		Lillydale	
	1137		Total= 369		Total= 370		Total= 398	
	N	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Underweight	23	2%	6	2%	6	2%	11	3%
Stunting	79	7%	16	4%	37	10%	26	7%
Wasting	15	1%	2	1%	1	0%	12	3%

WHO data malnutrion in South Africa:



The reported incidence of malnutrion in the children we checked is below the average for the whole country. In the 2010 book statistics of Mpumalanga malnutrition ranks very low in this state; our results underline this fact.
Analysis of the nutritional status shows significant differences among the locations visited (see table 4, 5 and 6). Within the children assessed, it is unknown how many children have HIV related weight loss (wasting syndrome).

Table 4: Prevalence of weight/age at or under P3 (underweight) per geographical location by age and gender

	Total		Huntington		Justicia		Lillydale	
	1137		Total= 369		Total= 370		Total= 398	
	N	%	n	%	n	%	n	%
Underweight	23	2%	6	2%	6	2%	11	3%
No underweight	946	98%	296	98%	314	98%	336	97%
Unknown	168	15%	67	18%	50	14%	51	13%
Underweight children per age								
<=1 year	4	3%	0	0%	1	2%	3	6%
>1 en <5 years	9	3%	2	2%	2	3%	5	5%
<5 years	13	3%	2	2%	3	2%	8	5%
>=5 en <=10 years	10	2%	4	2%	3	2%	3	2%
>10 years	0	0%	0	0%	0	0%	0	0%
Underweight children per gender								
Boy	8	2%	2	1%	2	1%	4	2%
Girl	15	3%	4	2%	4	3%	7	4%

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

	Total		Huntington		Justicia		Lillydale	
	1137		Total= 369		Total= 370		Total= 398	
	N	%	n	%	n	%	n	%
Stunting	79	7%	16	4%	37	10%	26	7%
No stunting	1051	93%	351	96%	331	90%	369	93%
Unknown	7	1%	2	1%	2	1%	3	1%

Stunting children per age									
<=1 year	18	13%	1	3%	11	22%	6	12%	
>1 en <5 years	31	11%	6	7%	13	17%	12	11%	
<5 years	49	12%	7	6%	24	19%	18	11%	
>=5 en <=10 years	19	4%	5	3%	7	4%	7	4%	
>10 years	11	6%	4	6%	6	10%	1	2%	
Stunting children per gender									
Boy	37	7%	7	4%	16	9%	14	7%	
Girl	41	7%	9	4%	21	12%	11	5%	

Table 6: Prevalence of weight/length at or under P3 (wasting) per geographical location by age and gender

	Total		**Huntington**		**Justicia**		**Lillydale**		
	1137		**Total= 369**		**Total= 370**		**Total= 398**		
	N	**%**	**n**	**%**	**n**	**%**	**n**	**%**	
Wasting	15	2%	2	1%	1	0%	12	5%	
No wasting	632	98%	202	99%	201	100%	229	95%	
Unknown	490	43%	165	45%	168	45%	157	39%	
Wasting children per age									
<=1 year	5	4%	1	3%	0	0%	4	8%	
>1 en <5 years	3	1%	0	0%	1	1%	2	2%	
<5 years	8	2%	1	1%	1	1%	6	4%	
>=5 en <=10 years	7	3%	1	1%	0	0%	6	8%	
>10 years	0	0%	0	0%	0	0%	0	0%	
Wasting children per gender									
Boy	3	1%	0	0%	0	0%	3	3%	
Girl	12	4%	2	2%	1	1%	9	7%	

Although the percentage is low for malnutrition on a whole, for the children scoring either positive for underweight or wasting, in combination with stunting, a referral into a feeding program is advised on an individual level.

2: Anaemia (34%)

Anaemia is the most prevalent micronutrient disorder in the world.

In South Africa no national policy has been implemented so far to provide iron supplements to pregnant women or young children. While iron deficiency is frequently the primary factor contributing to anaemia, it is important to recognise that the control of anaemia requires a multi-faceted approach.

In addition to iron deficiency, infectious diseases such as worm infections, other chronic infections, particularly HIV-AIDS and tuberculosis, as well as other nutritional deficiencies are risk factors for aneamia, and as well as side effects of ART medication in HIV positive children.

In 384 (34 %) children anemia was diagnosed (see table 7). In twelve children (1 %, 13/1137) the haemoglobin level was less than 5.0 mmol/l; these children were treated and the advice was given to check the Hb at the health post or hospital in 3 months.

Table 7: Prevalence of anaemia per geographical location by age and gender

	Total		Huntington		Justicia		Lillydale	
	1137		Total= 369		Total= 370		Total= 398	
	N	%	n	%	n	%	n	%
Anaemia	384	34%	163	44%	109	29%	112	28%

As the prevalence of anaemia is the highest in Huntington, special attention to deworming and iron rich diet is warranted.

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

	Total		Huntington		Justicia		Lillydale	
	1137		Total= 369		Total= 370		Total= 398	
	N	%	n	%	n	%	n	%
Anaemia	384	34%	163	44%	109	29%	112	28%
No anaemia	751	66%	206	56%	259	70%	286	72%
Unknown	2	0%	0	0%	2	1%	0	0%
Hb <5,0 mmol	12	1%	7	2%	3	1%	2	1%
Anaemia per age								
<=1 year	43	31%	17	49%	13	25%	13	26%
>1 en <5 years	98	36%	42	49%	27	34%	29	26%
<5 years	141	34%	59	49%	40	31%	42	26%
>=5 en <=10 years	187	34%	84	47%	50	28%	53	29%
>10 years	56	31%	20	29%	19	33%	17	30%
Anaemia per gender								
Boy	192	35%	76	46%	57	31%	59	31%
Girl	190	32%	87	43%	50	28%	53	26%

We treated the children with anaemia (and their mothers if they were breast fed) with supplements for three months.
If we suspected a vitamin deficit and/or an infection we gave multivitamins instead of iron supplements.

Reported incidents by various scholars for anaemia range between 11 and 29%. Global and regional comparisons indicate that South African children fare much better than the rest of Africa, but not as well yet as high-income regions (source: South Africa Journal of Clinical Nutrition, 2013).

3: Worm treatment (prophylactic 51% (575/1137); active worminfection 7% (78/1137); 0% suspected gardia.

Only 150 of the 1137 chilren received a anti-worm tablet in the last six months before our visit. Th WHO states that there is a strong relationship between a Helminth, an Ascaris Lumbricoides, a Hookworm, a Taenia Trichiura or Saginata (tapeworm) infection and anaemia. In studies Ascaris prevalence percentage is 19.3% and hookworm 7.6%. The incidence/prevalence of Taenia Saginata (tape worm) is not known.

If there was a clinical supsicion of an active worminfection or anemnestic clues of a gardia infection, children were treated either with albendazol for a active worminfection or with a course of metronidazol for a suspected gardia infection.

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

	Total		Huntington		Justicia		Lillydale	
	1137		Total= 369		Total= 370		Total= 398	
	N	%	n	%	n	%	n	%
Anti-worm	175	15%	36	10%	56	15%	83	21%
No anti-worm	890	78%	318	86%	296	80%	276	69%
Anti-worm per age								
<=1 year	13	9%	3	9%	4	8%	6	12%
>1 en <5 years	67	24%	12	14%	22	28%	33	30%
<5 years	80	19%	15	13%	26	20%	39	24%
>=5 en <=10 years	75	14%	15	8%	21	12%	39	21%
>10 years	20	11%	6	9%	9	16%	5	9%

Health education on the spot was aimed at increasing awareness of worm transmission, the diverse problems caused by intestinal helminth and the importance of bi-annual de-worming every six months. The fact that none of the checked children received a de-worming tablet in the last year is alarming. At al the visited schools we tried to explain to the teachers and people in charge why this de-worming is so important for the children.

4: Respiratory problems (34/1137)

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

Only three children with a severe acute respiratory infection (ARI) were treated with appropriate antimicrobials and home treatment advice.

Four children were diagnosed with possible tuberculosis and 27 children had either bronchitis or asthma.

The prevalence of asthma in South Afica is estimated around 8 percent over all ages, with a high mortality between the ages 5 tot 34 years old.

We are not informed about maternal smoking during pregnancy, passive smoking or indoor air pollution in the households, neither about other sources of other types of pollution, the number of children with post-viral or post- tuberculous lung damage and therefore not able to give specific prevention advice.

5: Cardial problems (pathological murmur <1% (6/1137), fysiological murmur 6 (see table appendix)

Mitral regurgitation or ventricular atrial septal defects being the most common heart problems in the third world. For this condition no treatment is available although a good dental situation is essential for a healthy live.

The MCC carrousel includes a cardial examination. We suspected six children of having a pathological heart murmur. The children and their care takers with this condition were stressed on teeth brushing procedures. Besides this, they were told to give their child antibiotics when going to a dentist for a teeth extraction. Because the clinical conditions of all six children were good, there was no need at this moment for further cardiac evaluation.

6: HIV/AIDS (5/1137)

HIV is one of the main health care problems in South Africa.

According to WHO numbers for 2013 the prevalence for HIV in adults between 15 en 49 years is 19,1% with in 2012 449/100.000 deaths due to HIV/AIDS. In 2013 there were 5.900.000 children below 15 years living with AIDS in South Africa.

We saw 5 children children with diagnosed HIV. This might underestimate the real number as we probably only coded the known cases of HIV.

Two suspected children were checked on the spot by the Dutch infectious disease doctor and turned out to be negative for HIV.

We did notice a lack of knowledge about the disease itself and about redflag symptoms in children with proven HIV.
ART's are provided by the local health post and most children or there parents did seem aware of the necessity of the tight medication regime.

7: Skin diseases (147/1137)
In respect to skin diseases we saw 89 (8%) of children with dermatomycoses, mainly tinea capitits. Tinea capitis in African countries is highly prevalent and often spread through the use of dirty razor blades when shaving the heads of the children. The presenting signs include scaling of the scalp with or without alopecia, or kerion. The ringworm of the scalp was sometimes associated with skin involvement on other areas of the body. MCC got the idea that education material picturing and describing ringworm of the scalp and preventive measures needs to be more ured by public health workers.
We've treated 6 children with ivermectin for scabies. We encountered a broad range of different kind of wounds and skin disorders, which were treated by antibacterial creams, sometimes in combination with oral antibiotics.
Twentythree children had impetigo and/or furunculosis, for which overcrowding, poor personal hygiene, minor skin trauma or eczema are the main predisposing factors.

Antifungal cream (eventually in combination with hydrocortison) was given for fungal infections (dermatomycosis) and hydrocortison crème was given for different forms of dermatitis. We treated the children with severe or infected forms of tinea capitis with griseofulvin tablets. In less severe cases we gave the caretakers the advice to buy selsun shampoo.

8: Dental (caries 13%)
The report on the National Oral Health Survey (2003) indicated with regard to South Africa that 39.7 % of the 6 year old group are free of caries. Numbers for Mpumalanga state a percentage of 56 % with caries for this age group in 2010. In this light the 13% of caries we found is positivitly low. Dental caries knows multifactorial determinants, such as access to and availability and utilisation of oral health services, socioeconomic status and dietary intake, which, in this case, is favourable in the locations we checked.

At the last station of the medical carrousel local volunteers handed out toothbrushes together with health education of the children and their caretakers in good teethbrushing.

9: Bilharzia
After malaria, schistozomiasis(bilharzia) is the second most prevalent tropical infection. Failure in the supply of safe water sources and sanitation, and failure to control snail intermediate hosts lead to continous transmission. This calls for non-selective treatment for all children at risks, and could be established by regular chemotherapy programs at schools. We treated 5 teenagers on the spot with praziquantel and reffered the others to the local clinic in Lillydale. Four children with painful urine had urinary tract infection and received antibiotics for it.

10: Child protection, social welfare service
During our medical mission we encountered many social ills that plague the local communities, especially Huntington. Many children we checked were free of physical ailments, but were having social problems that included child abuse, exploitation and neglect, poverty and domestic violence, apart from the children who were orphans and vulnerable by Hiv/Aids.
Although Swa Vana advocates and lobbies for the rights and protection of children, an extra support/assistance by a paid, year- round social worker is pivotal to minimize the burden for the children in need. The services in place in the 3 villages should do all the effort to offer the child victims immediate and appropiate care.

11: Referrals

During our checks days, several children were selected for additional diagnostics in the local clinics or Bubezi hospital, see the next table.
On the 15th of December we received the first written follow up from Swa Vana on some of these children. In the coming months other follow ups will hopefully follow, as ownership lies within Swa Vana.

Table 10: Follow-up of all children per geographical location

	Total		Huntington		Justicia		Lillydale	
	1137		Total= 369		Total= 370		Total= 398	
	N	%	n	%	n	%	n	%
Dentist	8	1%	2	1%	4	1%	2	1%
Specialist in hospital	8	1%	1	0%	6	2%	1	0%
Revisit	7	1%	4	1%	1	0%	2	1%
X-thorax	8	1%	2	1%	5	1%	1	0%
ECG	8	1%	3	1%	3	1%	2	1%
Urine + Kidney function	2	0%	1	0%	0	0%	1	0%
Bloodtest after 3 months	17	1%	9	2%	5	1%	3	1%
International organisation	2	0%	1	0%	1	0%	0	0%
Other…	44	4%	9	2%	22	6%	13	3%

V Recommendations

De-worming

In May 2001, South Africa endorsed the World Health Assembly (WHA) resolution 54.19, which aims to have 75% to 100% of schoolchildren on a program of regular school-based de-worming by 2010, with treatment rendered mostly by educators.

More than half of the children checked did not get a profylactic de-worming tablet in the last 6 months.

There seems to be a lack of coordination through the official health department; in some areas (http://www.health-e.org.za/2014/10/10/deworming-campaigns-set-hit-schools/) the department of education seems to take the lead on deworming programs in schools.

The Swa Vana project could be a good starting point in the necessary structure to provide the children in the communities with de-worming tablets twice a year.

Water

A large portion of the children stated during their visit to our medical camp that they only drank 1 or 2 cups of water a day.

Unsafe water and inadequate sanitation and hygiene are significant contributors to the 1.8 million deaths caused by diarrhoea every year.
For children under five years of age, this burden is greater than that covered by HIV and malaria combined.

Lack of water and chronic thirst in schoolchildren have negative effects on their concentration in school and on further academic prestations, often causing headaches.

Swa Vana could think of programs for safe drinking water near the households and making sure that children drink at least 4 cups of water a day. The WHO has lots of information and advice on clean water and sanitation for health care workers.

Anaemia

The reported incidence of anaemia in the children we checked during the medical camp is below average of what the statistics report for South Africa.

Anaemia is always multifactorial in cause, and the area we worked in is rich in fruits and vegetables. Household factors are important when considering malnutrition and anaemia. If we look at the menu provided at Swa Vana a few observations can be made:

- the diet is rich in carbohydrates (high caloric food)
- fat is added
- the vegetables are mostly roots and cabbege, spinach being the exception.

There seems to be some room for improvement in vitamine rich vegetables and fruits. The extention of the vegetable gardens is a good starting point. This could have a benificial effect on the incidence of anemia as in low income countries it is usually due to a combination of iron and vitamin deficit.

Neglect, child abuse, domestic violence

In the locations Huntington, Justicia and Lillidale the social problems are rampant and need further attention.

MCC advice would therefore be an upscaling of man/womanpower in adressing the social ills that plague the communities. Hiring a full time social worker for the Swa Vana projects and outreach to the whole community is pivotal to enhance the quality of life of many children.

HIV/AIDS

There seems to be a knowledge gap about HIV in children. Children do get their ART's, but parents and children and caretakers are unaware of the nutritional aspect of HIV in children, and don't have knowledge about redflags symptoms and lifethreatening circumstances in HIV children or when these children should go to the hospital.

Investment in more education of health workers, teachers,and health literacy of the kids' parents is advised. MCC team mebers could be potential educators, delivering workshops on certain medical issues on HIV/Aids and other diseases like tuberculosis, bilharzia or malaria.

Inbedding in existing public health services/need of care and service utilisation

Out of the 3 locations where MCC checked the community children, 2 villages had a public health clinic. Huntington did not have its own clinic, but was not far away of the district hospital Bubezi, although there might be some public transport and money issues.

Interestingly we did not experience any close fit of Swa Vana with the local medical services. We don t know the reasons for this, **but would advice Swa Vana to pursue a closer collaboration with the existing services**. Also we lack the insights on perception and experiences of the local communities with the local health clinics. In our opinion strenghtening the contacts with the local clinics is essential, with arrangements to acceptibility, affordability and availability issues.

VI Concluding comments and last words

Thanks to the amazing support from all the people from the Swa Vana project, the MCC team felt more than welcome at our first medical camp in Mpumalanga in South Africa. Mutual targets were hit, and personal connections were made in a partnership climate.
It was a **successful pilot project** in which **the medical results and allround evaluation are leading for future plans**.

In comparison to other locations/countries MCC is working in, the overall medical health status of the rural population checked was positive, which is a compliment to the ten years' investment of the Swa Vana project. However, the status is, based on our experience globally, *too* positive to come back next year with a complete MCC medical team. There seems to be a higher need to improve the *social* ills (neglect or child abuse, domestic violence, HIV orphans) in the community than the *medical* ills – except of course for the special cases we diagnosed and the feeding program referrals.

Possible cooperation of Swa Vana and MCC in 2015 might therefore more consist of **a consultant role from MCC** to the care workers on specific public health issues, such as good diet and vitamins, communicable ailments such as ringworm of the scalp, bilharzia, ART medication in children and red flags for seeking help (workshops free of costs).
For all the checked children below the age of 5 years in the communities, MCC has left behind extra supplies of multivitamins, which can be distributed after 6 months, free of costs (March 2015).

A second recommendation lies in the creation of **a closer fit with the local health services** in Justicia and Lillidale, and with MCC in an advising role in case of possible plans for a small clinic in Huntington.

These recommendations were discussed with the Stichting MAMAS on the 15th of December 2014.

On behalf of the MCC Swa Vana team 2014:

Ines von Rosenstiel
Miguette Jadoul
January 2015

MCC Swa Vana 2014

Appendix: A & B

A Disaese prevalence among all children per geographical location

	Total		Huntington		Justicia		Lillydale	
	1137		Total= 369		Total= 370		Total= 398	
	N	%	n	%	n	%	n	%
Underweight	23	2%	6	2%	6	2%	11	3%
Stunting	79	7%	16	4%	37	10%	26	7%
Wasting	15	1%	2	1%	1	0%	12	3%
Anaemia	384	34%	163	44%	109	29%	112	28%
HIV pos.	5	0%	1	0%	1	0%	3	1%
AIDS	0	0%	0	0%	0	0%	0	0%
Malaria (suspected)	5	0%	2	1%	2	1%	1	0%
vitamin deficit (clinical signs)	78	7%	11	3%	21	6%	46	12%
Bilharzia	4	0%	0	0%	0	0%	4	1%
syndrome n.o.s.	1	0%	0	0%	0	0%	1	0%
pneumonia (clinical)	2	0%	1	0%	1	0%	0	0%
pneumonia (X-ray confirmed)	1	0%	1	0%	0	0%	0	0%
tuberculosis (clinical)	3	0%	0	0%	2	1%	1	0%
tuberculosis (X-ray confirmed)	1	0%	0	0%	0	0%	1	0%
bronchitis	9	1%	5	1%	1	0%	3	1%
BHR/asthma	18	2%	9	2%	6	2%	3	1%
gardia (suspected)	1	0%	0	0%	1	0%	0	0%
dysenteria	0	0%	0	0%	0	0%	0	0%
dehydration : acute diarrhoea	0	0%	0	0%	0	0%	0	0%
dehydration : chronic diarrhoea	1	0%	0	0%	1	0%	0	0%
diarrhoea without dehydration	10	1%	0	0%	5	1%	5	1%
constipation	4	0%	1	0%	2	1%	1	0%
active worm infection	82	7%	49	13%	19	5%	14	4%
active lintworm	0	0%	0	0%	0	0%	0	0%
otitis media acuta	12	1%	4	1%	6	2%	2	1%
otitis media with effusion	9	1%	4	1%	2	1%	3	1%
otitis externa	2	0%	1	0%	0	0%	1	0%

tympanic perforation	1	0%	0	0%	1	0%	0	0%
mastoiditis	0	0%	0	0%	0	0%	0	0%
(adeno)tonsillitis	1	0%	0	0%	1	0%	0	0%
candida stomatitis	0	0%	0	0%	0	0%	0	0%
sinusitis	2	0%	1	0%	0	0%	1	0%
hearing impairment	3	0%	1	0%	0	0%	2	1%
other	1	0%	1	0%	0	0%	0	0%
cariës n.o.s.	91	8%	26	7%	33	9%	32	8%
pain n.o.s	0	0%	0	0%	0	0%	0	0%
fluorosis	0	0%	0	0%	0	0%	0	0%
caries with pain	62	5%	17	5%	20	5%	25	6%
wounds n.o.s.	3	0%	1	0%	2	1%	0	0%
eczema n.o.s.	15	1%	1	0%	5	1%	9	2%
dermatomycosis	89	8%	31	8%	27	7%	31	8%
Impetigo/furunculosis	23	2%	8	2%	4	1%	11	3%
lice	1	0%	0	0%	0	0%	1	0%
scabies	6	1%	4	1%	1	0%	1	0%
erysipelas / cellulites	0	0%	0	0%	0	0%	0	0%
wounds infected,	3	0%	3	1%	0	0%	0	0%
insect bite	1	0%	0	0%	0	0%	1	0%
other (psoriasis etc)	6	1%	2	1%	4	1%	0	0%
psychomotoric retardation	1	0%	0	0%	0	0%	1	0%
hypertonia	0	0%	0	0%	0	0%	0	0%
hypotonia	0	0%	0	0%	0	0%	0	0%
epilepsy	1	0%	1	0%	0	0%	0	0%
spina bifida	0	0%	0	0%	0	0%	0	0%
migraine/headache	1	0%	0	0%	0	0%	1	0%
meningitis	0	0%	0	0%	0	0%	0	0%
leg kramps	0	0%	0	0%	0	0%	0	0%
physiological murmer	6	1%	1	0%	0	0%	5	1%
pathological murmur (suspected)	6	1%	3	1%	2	1%	1	0%
refractory problem	4	0%	2	1%	2	1%	0	0%
strabismus	1	0%	1	0%	0	0%	0	0%
keratoconjunctivitis	6	1%	3	1%	2	1%	1	0%
amblyopia	0	0%	0	0%	0	0%	0	0%

thyroid dysfunction (suspected)	0	0%	0	0%	0	0%	0	0%
diabetes	0	0%	0	0%	0	0%	0	0%
menorraghia	0	0%	0	0%	0	0%	0	0%
amenorrhoea	0	0%	0	0%	0	0%	0	0%
pregnancy	0	0%	0	0%	0	0%	0	0%
epi/hypospadia	1	0%	0	0%	1	0%	0	0%
cryptorchism	0	0%	0	0%	0	0%	0	0%
inguinal hernia	1	0%	0	0%	0	0%	1	0%
urinary infection	4	0%	3	1%	0	0%	1	0%
chronic kidney path.	1	0%	1	0%	0	0%	0	0%
artralgia n.o.s.	0	0%	0	0%	0	0%	0	0%
septic arthritis	0	0%	0	0%	0	0%	0	0%
hip dysplasia	1	0%	0	0%	0	0%	1	0%
old fracture	0	0%	0	0%	0	0%	0	0%
new fracture	0	0%	0	0%	0	0%	0	0%
hernia(umbilical etc)	9	1%	0	0%	0	0%	9	2%

B Treatment among all children per geographical location

	Total		Huntington		Justicia		Lillydale	
	1137		Total= 369		Total= 370		Total= 398	
	N	%	n	%	n	%	n	%
ferro	89	8%	35	9%	23	6%	31	8%
mother iron	16	1%	7	2%	6	2%	3	1%
multivitamins	474	42%	139	38%	133	36%	202	51%
anti-worm	575	51%	255	69%	198	54%	122	31%
acute worm	78	7%	64	17%	10	3%	4	1%
anti-lice	0	0%	0	0%	0	0%	0	0%
anti-scabies	6	1%	4	1%	1	0%	1	0%
niclosamide	2	0%	1	0%	1	0%	0	0%
amoxicillin	25	2%	11	3%	9	2%	5	1%
augmentin	5	0%	4	1%	0	0%	1	0%
2e lijns antibiotica	8	1%	0	0%	5	1%	3	1%
metranidazol	0	0%	0	0%	0	0%	0	0%
co-trimoxazol	5	0%	2	1%	2	1%	1	0%
ceftriaxon	0	0%	0	0%	0	0%	0	0%
AB urine infection	0	0%	0	0%	0	0%	0	0%
paracetamol	16	1%	3	1%	10	3%	3	1%
ORS	6	1%	1	0%	3	1%	2	1%
eardrops	2	0%	0	0%	0	0%	2	1%
nystatine	0	0%	0	0%	0	0%	0	0%
mupirocine=Bactroban	6	1%	1	0%	0	0%	5	1%
hydrocortisone cream	12	1%	2	1%	3	1%	7	2%
dactarin cream	71	6%	25	7%	19	5%	27	7%
dactacort cream	1	0%	0	0%	0	0%	1	0%
fusidin cream	19	2%	8	2%	5	1%	6	2%
sudo cream	0	0%	0	0%	0	0%	0	0%
neutral cream	6	1%	0	0%	0	0%	6	2%
iodine	0	0%	0	0%	0	0%	0	0%
selsun	0	0%	0	0%	0	0%	0	0%
eyedrops	7	1%	2	1%	4	1%	1	0%