Medical Checks for Children

Medical Rapport
South Africa Valyoi Trust 2014

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Arnhem, november 2014

MCC SA Valoyi Trust 2014

Introduction

From september the 21th untill september the 27 th, a Medical Checks for Children (MCC) team visited locations near Tzaneen in the northern parts of South Africa. Free of cost, the MCC team checked and treated 1372 children aged newborn untill 10 years of age.
The team consisted of Nadine van Dijk, mission leader and medical-end-responsible, emergency physician; Peter van Geene, ER/ICU-nurse; Esther Broekhuizen, family doctor; Maryse Duran, youth health care physician; Jantine Versluis, resident doctor; Stephan van de Elshout, IT consultant; Mieke Brouwer, pharmacist; Leo Verzijl, retired; Marjan Bolt, laboratory analyst; Silfke van Dijk, accountmanager.

Our host patron durning the stay was the Valoyi Trust in Tzaneen, part of 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 pharmay in Tzaneen.

The cooperation with the Valoyi Trust existed out of the following (amongst others):

- Transfer of knowledge about expected diseases
- Selection of primary schools and orphanages.
- Prior announcement of the medical camp in the locations.
- Giving support to the MCC team during the medical camp.

The MCC team was delighted by the cooperation with the Valoyi Trust and all their healtcare 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 other supporting members who have helped directly or indirectly, despite their own obligations.
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.

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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)

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 four weeks was recorded. Specifically, caretakers were asked if the child had diarrhoea, an upper respiratory infection, vomiting, eating soil (pica), decreased appetite and 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 were analysed through the MCC data base.

The medical checks were performed on seven days at different locations.

Programm:

Day 1: Mandlhakazy
Day 2: Valoyi Center
Day 3: Maweni
Day 4: Valoyi Center
Day 5: Rwanda
Day 6: Babana
Day 7: Valoyi Center

At the different locations we checked beside the schoolchildren some young non-schoolgoing 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 (table 1)

Table 1: Pooling of locations for data analysis

Rijlabels	21-09-14	22-09-14	23-09-14	24-09-14	25-09-14	26-09-14	27-09-14	Total
Akanani	0	0	216	0	0	0	0	216
Babanana	0	0	0	0	0	247	0	247
Mandlhakazi	218	0	0	0	0	0	0	218
Nwajahemi	0	0	0	0	250	1	0	251
Shongani Village	0	0	0	180	0	0	0	180
Valoyu Creche <5 yr	0	100	0	0	0	0	0	100
Valoyu Creche > = 5 yr	0	102	0	0	0	0	0	102
Xitsavi	0	0	0	0	0	0	58	58
Total	**218**	**202**	**216**	**180**	**250**	**248**	**58**	**1372**

Table 2: Number. age and gender distribution of the 1372 checked children at the different locations

	Total		Akanani		Babanana		Mandlhakazi		Nwajahemi	
	1372		Total= 216		Total= 247		Total= 218		Total= 251	
Age	**N**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
<=1 year	125	9%	2	1%	20	8%	27	12%	1	0%
>1 en <5 years	332	24%	1	0%	115	47%	59	27%	1	0%
<5 years	457	33%	3	1%	135	55%	86	39%	2	1%
>=5 en <=10 years	893	65%	213	99%	112	45%	120	55%	248	99%
>10 years	22	2%	0	0%	0	0%	12	6%	1	0%
Gender										
Boy	689	50%	112	52%	123	50%	115	53%	118	47%
Girl	683	50%	104	48%	124	50%	103	47%	133	53%

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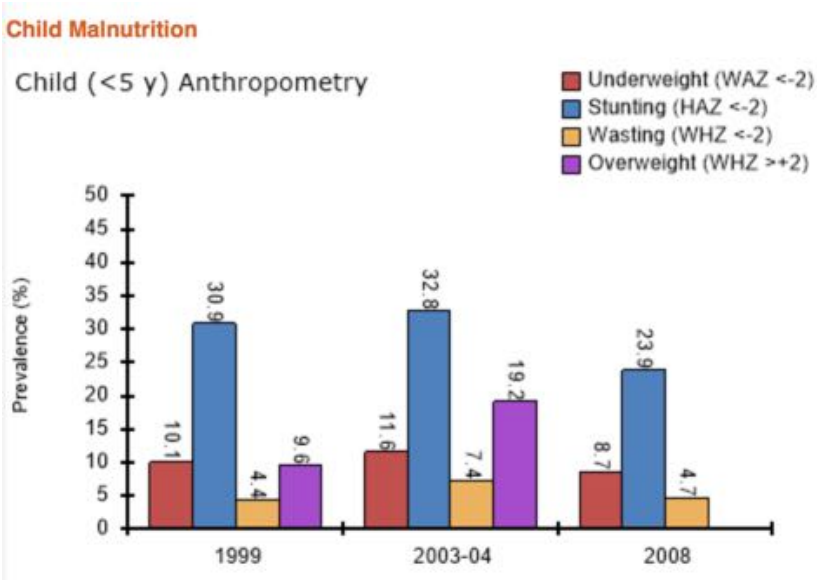
	Shongani Village		Valoyu Creche <5 yr		Valoyu Creche > = 5 yr		Xitsavi	
	Total= 180		Total= 100		Total= 102		Total= 58	
Age	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
<=1 year	42	23%	25	25%	0	0%	8	14%
>1 en <5 years	54	30%	75	75%	0	0%	27	47%
<5 years	96	53%	100	100%	0	0%	35	60%
>=5 en <=10 years	78	43%	0	0%	102	100%	20	34%
>10 years	6	3%	0	0%	0	0%	3	5%
Gender								
Boy	96	53%	44	44%	56	55%	25	43%
Girl	84	47%	56	56%	46	45%	33	57%

1: Growth abnormality and malnutrition:
(underweight: 4 % (55/1284), stunting: 6 % (75/1283), wasting: 3% (28/1037)
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 is 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 inadequate childcare. 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.

WHO data malnutrion in South Africa:



The reported incidence of malnutrion in the children we checked is below the average for the whole country. Especially the very low reported incidence of stunting in our population jumps out.

Analysis of the nutritional status shows significant differences among the locations visited (see table 4, 5 and six) Within the children assessed, it is unknown how many children have HIV related weight loss (wasting syndrome).

Table 4 *Prevalence of Weight/age (Underweight) on or below P3 per GEOGRAPHICAL LOCATION by AGE and GENDER*

	Total		Akanani		Babanana		Mandlhakazi		Nwajahemi		Shongani Village		Valoyu Creche <5 yr		Valoyu Creche > = 5 yr		Xitsavi	
	1372		Total= 216		Total= 247		Total= 218		Total= 251		Total= 180		Total= 100		Total= 102		Total= 58	
	N	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Underweight	55	4%	1	0%	15	6%	12	6%	11	4%	6	3%	2	2%	5	5%	3	5%
No underweight	1284	96%	208	100%	232	94%	189	94%	239	96%	169	97%	98	98%	97	95%	52	95%
Unknown	33	2%	7	3%	0	0%	17	8%	1	0%	5	3%	0	0%	0	0%	3	5%
Underweight children per age																		
<=1 year	8	6%	0	0%	3	15%	4	15%	1	100%	0	0%	0	0%	0	0%	0	0%
>1 en <5 years	13	4%	0	0%	4	3%	2	4%	0	0%	2	4%	2	3%	0	0%	3	11%
<5 years	21	5%	0	0%	7	5%	6	7%	1	50%	2	2%	2	2%	0	0%	3	9%
>=5 en <=10 years	34	4%	1	0%	8	7%	6	5%	10	4%	4	5%	0	0%	5	5%	0	0%
>10 years	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
Underweight children per gender																		
Boy	30	4%	1	1%	9	7%	8	7%	4	3%	4	4%	1	2%	3	5%	0	0%
Girl	25	4%	0	0%	6	5%	4	4%	7	5%	2	2%	1	2%	2	4%	3	10%

Table 5 p*revalence of Height/age (Stunting)on or below P3 per GEOGRAPHICAL LOCATION by AGE and GENDER*

	Total		Akanani		Babanana		Mandlhakazi		Nwajahemi		Shongani Village		Valoyu Creche <5 yr		Valoyu Creche > = 5 yr		Xitsavi	
	1372		Total= 216		Total= 247		Total= 218		Total= 251		Total= 180		Total= 100		Total= 102		Total= 58	
	N	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Stunting	75	6%	2	1%	26	11%	12	6%	9	4%	8	4%	4	4%	11	11%	3	5%
No stunting	1283	94%	207	99%	220	89%	204	94%	242	96%	171	96%	96	96%	91	89%	52	95%
Unknown	14	1%	7	3%	1	0%	2	1%	0	0%	1	1%	0	0%	0	0%	3	5%
Stunting children per age																		
<=1 year	5	4%	0	0%	1	5%	3	11%	0	0%	1	2%	0	0%	0	0%	0	0%
>1 en <5 years	22	7%	0	0%	8	7%	3	5%	0	0%	4	7%	4	5%	0	0%	3	11%
<5 years	27	6%	0	0%	9	7%	6	7%	0	0%	5	5%	4	4%	0	0%	3	9%
>=5 en <=10 years	48	5%	2	1%	17	15%	6	5%	9	4%	3	4%	0	0%	11	11%	0	0%
>10 years	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
Stunting children per gender																		
Boy	38	6%	0	0%	13	11%	6	5%	5	4%	5	5%	2	5%	7	13%	0	0%
Girl	37	5%	2	2%	13	11%	6	6%	4	3%	3	4%	2	4%	4	9%	3	10%

Table 6 Prevalence of Weight/height (Wasting) on or below P3 per GEOGRAPHICAL LOCATION by AGE and GENDER

	Total		Akanani		Babanana		Mandlhakazi		Nwajahemi		Shongani Village		Valoyu Creche <5 yr		Valoyu Creche > = 5 yr		Xitsavi	
	1372		Total= 216		Total= 247		Total= 218		Total= 251		Total= 180		Total= 100		Total= 102		Total= 58	
	N	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Wasting	28	3%	4	2%	5	2%	10	7%	3	2%	4	3%	0	0%	2	3%	0	0
No wasting	1037	97%	186	98%	215	98%	125	93%	162	98%	131	97%	100	100%	73	97%	45	10
Unknown	307	22%	26	12%	27	11%	83	38%	86	34%	45	25%	0	0%	27	26%	13	2
Wasting children per age																		
<=1 year	8	6%	0	0%	2	10%	6	23%	0	0%	0	0%	0	0%	0	0%	0	0
>1 en <5 years	3	1%	0	0%	1	1%	1	2%	0	0%	1	2%	0	0%	0	0%	0	0
<5 years	11	2%	0	0%	3	2%	7	9%	0	0%	1	1%	0	0%	0	0%	0	0
>=5 en <=10 years	17	3%	4	2%	2	2%	3	6%	3	2%	3	8%	0	0%	2	3%	0	0
>10 years	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0
Wasting children per gender																		
Boy	12	2%	2	2%	2	2%	5	7%	2	2%	1	1%	0	0%	0	0%	0	0
Girl	16	3%	2	2%	3	3%	5	8%	1	1%	3	5%	0	0%	2	7%	0	0

We are aware of the financial problems and, because of draught, scarcity of healthy food for many families.

2: Anaemia: (49%, 671/1372)
Anaemia is the most prevalent micronutrient disorder in the world.
In Kenia 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, and as side effects of ART medication in HIV positive children.
It is unknown how many children with abdominal problems have iron deficiency anaemia and a coexisting H. pylori infection. From literature it is known that one should suspect an infection with H. pylori when the iron deficiency anaemia is refractory to iron administration.

In 671 (49%) children anemia was diagnosed (see table 7). In thirteen children (1 %, 13/1372) the haemoglobin level was less than 5.0 mmol/l; these children were treated and the advices 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		Akanani		Babanana		Mandlhakazi		Nwajahemi		Shongani Village		Valoyu Creche <5 yr		Valoyu Creche > = 5 yr		Xitsavi	
	1372		Total= 216		Total= 247		Total= 218		Total= 251		Total= 180		Total= 100		Total= 102		Total= 58	
	N	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Anaemia	671	49%	97	45%	86	35%	109	50%	135	54%	89	49%	68	68%	60	59%	27	47%
No anaemia	635	46%	119	55%	96	39%	109	50%	116	46%	91	51%	32	32%	42	41%	30	52%
Unknown	66	5%	0	0%	65	26%	0	0%	0	0%	0	0%	0	0%	0	0%	1	2%
Hb <5,0 mmol	13	1%	0	0%	5	2%	2	1%	2	1%	2	1%	2	2%	0	0%	0	0%
Anaemia per age																		
<=1 year	65	52%	1	50%	10	50%	10	37%	1	100%	23	55%	15	60%	0	0%	5	63%
>1 en <5 years	184	55%	0	0%	52	45%	34	58%	1	100%	30	56%	53	71%	0	0%	14	52%
<5 years	249	54%	1	33%	62	46%	44	51%	2	100%	53	55%	68	68%	0	0%	19	54%
>=5 en <=10 years	409	46%	96	45%	24	21%	59	49%	132	53%	32	41%	0	0%	60	59%	6	30%
>10 years	13	59%	0	0%	0	0%	6	50%	1	100%	4	67%	0	0%	0	0%	2	67%
Anaemia per gender																		
Boy	357	52%	56	50%	47	38%	60	52%	64	54%	49	51%	30	68%	38	68%	13	52%
Girl	314	46%	41	39%	39	31%	49	48%	71	53%	40	48%	38	68%	22	48%	14	42%

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

Reported incidences by various scholars for anemia 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. South Africa Journal of Clinical Nutrition 2013.

3: Worm treatment: (prophylactic 62% (852/1372); active worminfection 6% 76/1372 ; 0% suspected gardia.

Only 21% of the chilren received a antiworm tablet in the last six months befor our visit. Th WHO recommends
A strong relationship exists 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 a active worminfection or anemnestic clues of a gardia infection, children where treated either with albendazol for a active worminfection or with a course of metronidazol for a suspected gardia infection.

Dysenteria was suspected in 1 child (< 1%) who was treated with a course of cotrimoxazol.

We see a trend towards a higher reported incidence of active worm infection.This could be due to more awareness in the treating doctors due to medical information provided to the medical team during the prepartion fase and the new treatment protocol in our medical handbook.

Table 8: Prevalence preventive anti-worm treatment in the last half-year per geographical location by age and gender

	Total		Akanani		Babanana		Mandlhakazi		Nwajahemi		Shongani Village		Valoyu Creche <5 yr		Valoyu Creche > = 5 yr		Xitsavi	
	1372		Total= 216		Total= 247		Total= 218		Total= 251		Total= 180		Total= 100		Total= 102		Total= 58	
	N	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Anti-worm	284	21%	1	0%	1	0%	77	35%	57	23%	35	19%	85	85%	28	27%	0	0%
No anti-worm	1087	79%	215	100%	246	100%	141	65%	193	77%	145	81%	15	15%	74	73%	58	100
Anti-worm per age																		
<=1 year	28	22%	0	0%	0	0%	4	15%	1	100%	3	7%	20	80%	0	0%	0	0%
>1 en <5 years	106	32%	0	0%	0	0%	22	37%	1	100%	18	33%	65	87%	0	0%	0	0%
<5 years	134	29%	0	0%	0	0%	26	30%	2	100%	21	22%	85	85%	0	0%	0	0%
>=5 en <=10 years	138	15%	1	0%	1	1%	41	34%	54	22%	13	17%	0	0%	28	27%	0	0%
>10 years	12	55%	0	0%	0	0%	10	83%	1	100%	1	17%	0	0%	0	0%	0	0%

Preventive antiworm treatment was given to 65 % of all checked children. Last year we had to give alle the children (100%) a profylactic antiworm tablet. We hope to see next year that this represents a structural improvement in the health care system. In the area we visited in Kenia West the coverage of the de-worming programm is almost non-existing. This could be due to the greograhical, remote lcoation of the villages visisted. We did provide the Nakure remand home with extra anti-worm tablets to hand out to newcomers.

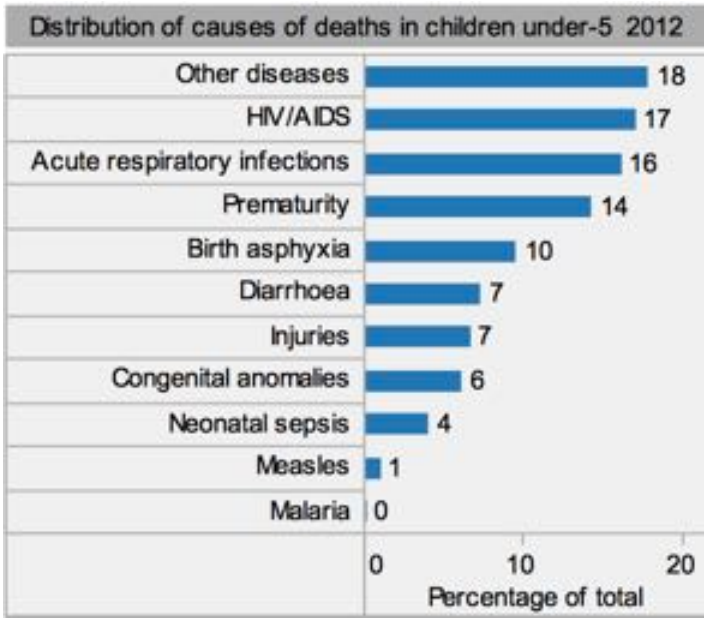
Health education on the spot was aimed at increasing awareness of worm transmission, the divers problems caused by intestinal helminth and the importance of bi-annual de-worming every six months. The fact that none of the checked children received a deworming tablet in the last year is alarming. At al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

4: Pneumonia: (23/1372, 2%) (see table appendix)
"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).
The 13 children with a severe acute respiratory infection (ARI) were treated with appropriate antimicrobials and home treatment advice.

5: Cardial problems: (pathological murmur <1% (3/1372), fysiological murmur 2% (25/1372) (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 three 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 three children was good, there was no need at this moment for further cardiac evaluation.

6: HIV/AIDS

HIV is one of the main health care problems in South Africa. The WHO country health profile 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 14 children (1% 14/1272) children with HIV; most of them in Babana and Nwajahemi. This seems to be an underestimate of the real number as we probably only coded the known cases of 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 necesittiy of the tight medication regime.

7: Skin diseases: (195/1372, 14%)(see table 1of the appendix)
In respect to skin diseases we saw 154 (154/1372 11%)children with dermatomycoses including tinea capitits. Tinea capitis in African countries is often caused and spread through the use of dirty razor blades when shaving the heads fo the children.
We've treated 1 children with ivermectin for scabies (<1%). We encountered a broad range of different kind of wounds and skindisorders (41/1372 43%).

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

8: Dental: (caries not otherwise specified: 230/1372, 17%; painful caries: 20/1372, 1%)
In general a high caries prevalence was found. Our reported incidence of 1% for painfull caries is low. We assume this is due to underscoring and/or communications problems with the children who attend the checks without a caretaker.

At the last station of the medical carroussel local volunteers gave out toothbrushes and educated the children and their caretakers in teethbrushing.

9: Other

Unfortunately a lot of children attended the medical camp without a parent as a caretaker. We do understand the need for the mothers to work on the land and are happy that there were a lot of dedicated teachers who really felt the children were theirs.

To get adequate health information about the child and to be able to provide information about hygiene and nutrition to parents, more parents should attend the medical camp.

	Total		Akanani		Babanana		Mandlhakazi		Nwajahemi		Shongani Village		Valoyu Creche <5 yr		Valoyu Creche > = 5 yr		Xitsavi	
	1372		Total= 216		Total= 247		Total= 218		Total= 251		Total= 180		Total= 100		Total= 102		Total= 58	
	N	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
No	77	6%	0	0%	27	11%	45	21%	0	0%	2	1%	0	0%	0	0%	3	5%
Yes	661	48%	0	0%	55	22%	173	79%	0	0%	178	99%	100	100%	102	100%	53	91%
Teacher	634	46%	216	100%	165	67%	0	0%	251	100%	0	0%	0	0%	0	0%	2	3%

Further recommendations

The overall health situation in the area were the Valoyi Trust works, is better than expected. There are not a lott of children with severe growht retardation or malnutrition. There seems to be an good govermental health care system although it was not possible for us to get in contact with the nearest healt posts.

Deworming

A large percentage of the children did not get the prolylactic antiworm treatment in the last 6 months.

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 programme of regular school-based deworming by 2010, with treatment rendered mostly by educators.

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 programms in schools.

The Valoyi Trust could be a good structure to provide the children in their working area with deworming 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 hasnegative effects on their concentration in school, on further academic prestations and the overall economic situation of a population.

The valoyi trust could think about programms for safe drinking water near the households and make sure that children at the trust drink at least a few cups of water when their at the trust. The WHO has lots of information and advice on clean water and sanitation for health care workers.

Redommendation:

- *The Valoyi Trust could start mapping out the communities that don't have a acces to safe drinking water.*

- *The Valoyi Trust should give schools and caretakers information on the need for children to drink safe water.*

Anemia

The reported incidence of anemia in the children we checked during the medical camp is almost twice as high ar reported for South Africa.

Anemia is always multifactorial in cause and the area we worked in is very poor and dry. Household factors are important when considering malnutrition and anemia. If we look at the menu provided at Valoyi Trust and presume it's based on what is available in the region (not only for the Trust but also for the villages and families) a few observations can be made:

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

There seems to be room for improvement in vitamine rich vegatables and fruits. 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.

Ofcourse we would be willing to help with optimizing the foodprogramma. Our partner organization The Sophia Foundation for Children runs feeding programms in a large area in Kenya and has provided us with their foodschedule for us to use.

Recommendations:

- *The Valoyi Trust could make an inventarization of which vegatables and fruits are available during the seasons either in their own garden or on the market (if possible with retailprices).*
- *The Valoyi Trust could educate schools and caretakers on the need of an balanced diet for children in order to grow up healthy.*
- *MCC is willing to look into the feedingprogramm of the Valoyi Trust at the creche (energy intak, caloric intake etc) to see if small adjustments good be benifical in reducing anemia.*
- *The Valoyi Trust should think about a specific diet for the HIV children which we are willing to provide the details for.*

HIV/AIDS

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

The Valoyi Trust could take the lead in offering advice and information to the schools about pupils with HIV and try to make living with HIV a part of their community outreach programm. In the creche and nursery where the Valoyi Trust has a good structure, it could be an option to make one person responsible for the HIV children and keep track records of these children with the medication they are on, the CD4 numbers and their growth charts. Special nutriotional recommedations for HIV children are available

Recommendations:

- *The Valoyi Trust could install a monitor system for all know children with HIV/AIDS*
- *MCC is willing to help in education of the health care workers of Valoyi Trust on speficic topics for HIV in children*
- *MCC is willing to help in educating the teachers of schools and creches on health care topics.*

HIV impairs nutritional status by undermining the im-mune system and nutrient intake, absorption and use. Adults with HIV have 10–30% higher energy requirements than a healthy adult without HIV, and children with HIV 50–100% higher than normal requirements.

Food availability and good nutrition are thus essential for keeping people with HIV healthy and able to resist opportunistic infections such as tuberculosis for longer especially in resource-poor settings where preventive health care is not often available

Dietary advice should be tailored to individual circumstances. However, in general the recommendations for people living with asymptomatic HIV infection are much the same as for everyone else, meaning a healthy, balanced diet. 24 Only three differences are worth noting:

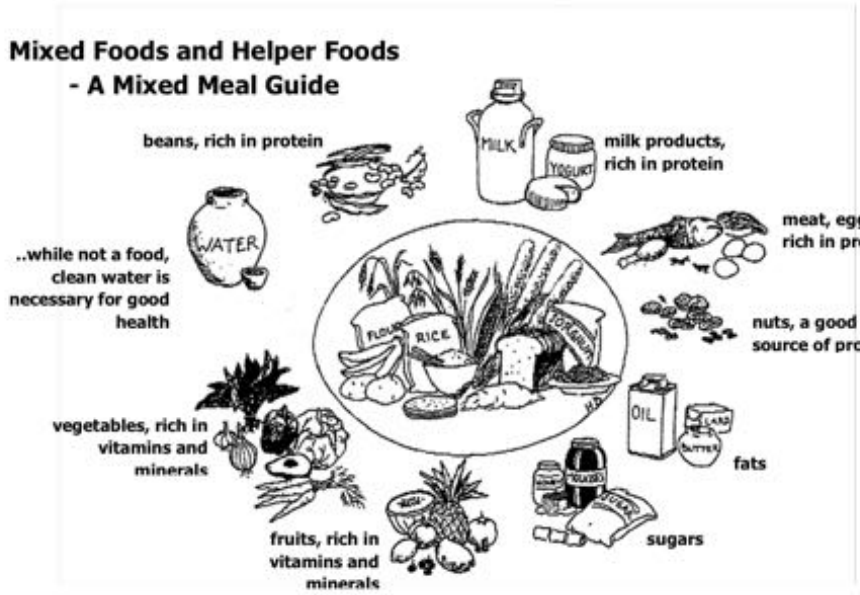
- Because people with untreated HIV tend to burn more energy, the total number of calories should be around 10% higher than the usual guideline amounts, and up to 30% higher during recovery from illness. The balance of fat, protein and carbohydrates should remain the same.
- Many experts recommend a daily multivitamin (usually without iron, except in menstruating women or people with iron deficiency).
- The World Health Organisation recommends vitamin A supplements every 4-6 months for young children living with HIV in resource-poor settings.

South African guideline for people living with HIV/AIDS:

Ways to help the child with HIV/AIDS:

- It helps to encourage the child to eat small portions of food more regularly than usual.
- Increase the intake of protein by adding dried milk powder or peanut butter to the food.
- Increase the intake of energy by adding small amounts of cooking oil, margarine or butter to the child's food
- Give the child food that is soft, moist and easy to chew and swallow. This is very important when the child has thrush.
- If the child has problems digesting milk, try yoghurt or sour milk products like maas and buttermilk. Yoghurt can also help if the child has diarrhoea.

Feeding recommendations for children older than 5 years are the same as for adults:



In conlusion:

We do see some health topics that need adressing and propose some reachable interventions that could change the health situation for a lot of children!

There Is a need for:

- a deworming programm on schools and creches with the Valoyi Trust as the party that claims ownerschip
- attention for enough safe drinking water the children
- attention for the feeding programm at the Trust
- health education on particular subjects as stated above

We would suggest that Medical Checks for Children returns in 2016 for not only a medical camp but returns also for a health eduction programm for the health care workers of Valoyi Trust.

In the maintime the Valoyi Trust has time to look and if possible implement the recommendations. Ofcourse we are willing to help with particular recommendations as stated above.

Last words:
Thanks to the amazing support from al the people from the Valoyi Trust how made us feel really welcome at our first medical camp in South Africa. For a first medical camp in South Africa it was a great experience!

Appendix A Disease prevalence among all children per geographical location