Medical Checks for Children

Medical Report Tanzania Mtakuja 2010

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Introduction:
In the fourth week of August 2010 Medical Checks for Children (MCC) visited for the second time Mtjakuja, a small village in the North of Tanzania (Africa). The medical camp was organized for seven days starting the 22th of August, at two different locations.
The MCC team checked and treated free of cost 1226 children (mainly aged 9 years and below).

The MCC team consisted of eleven members from The Netherlands: Karlien Bongers (medical-end-responsible and mission leader, general surgeon), Iris van de Gevel (organization-end-responsible, toxicologist/regulatory affairs manager), Anne Vlietstra (family doctor), Nadine van Dijk (emergency doctor), Eveline Resing (family doctor), Maryse Duran (anaesthesiologist in training), Jasmijn Hubers (medical doctor, researcher), Astrid van Koppen (psychologist), Zena Gillis (nurse specialised in children), Ella van Tunen-Vrenegoor (personal assisstent) and Frank van Tunen (financial administrator).

The medical checks were organized in close cooperation with The Mtakuja Development Project, a partnership between Mtakuja village and the Dutch NGO FD Kilimanjaro with the aim to eradicate poverty from the community of Mtakuja. The village is located in the Kilimanjaro Region of northern Tanzania. It has approximately 4250 inhabitants (2008)of whom more than 50% are younger than 20 years of age. Mtakuja consists of several sub villages: Mserikia, Riserv, Mabatini, Josho, Upareni and Remiti. The nearest hospital is Tanganyika Planting Company (TPC) hospital, approximately 6 to 11 km from Mtakuja (2 - 3 hours by foot, 1-2 hours by bike).

Technical equipment and some of the supplies and medication were brought from Europe by MCC team members. Most of the medication was ordered by Gerbert Rieks from TPC hospital with help of Dr. Harry Mwerinde. An overview of all purchased medicine can be found in Appendix D. Soap for every child was purchased from local shops in Moshi and sponsored by Family and friends of Sandra Buurman and Roel Raatgever. Toothbrushes were donated by Ricoh Nederland BV.

The cooperation of FD Kilimanjaro (in person of Gerbert Rieks and Stella Mserikie) existed out of the following (amongst others):

- Education and selection of translators/local helpers.
- Providing board and lodging of all MCC team members.
- Transportation of the MCC team from Kilimanjaro airport to TPC and transportation to the check locations.
- Selection of the check locations.
- Announcement of the medical camp in the villages.
- Making copies of all necessary papers.
- Giving support in ordering and delivery of medication.
- Giving all kinds of support to the MCC team during the medical camp.
- Arranging the cooperation with eye doctor Chantal Giramahoro (KCMC), CCBRT and Ahmed Ulimwengu, dentist of TPC hospital

We are grateful to all the parents, care takers and community people for bringing the children and helping to conduct the program. We are happy we got the opportunity to work with and to learn from all volunteers, translators and other supporting members who have helped directly or indirectly, despite their own obligations. Our special thanks go to Stella Msarikie and Gerbert Rieks for their support and enthusiasm which gave MCC the opportunity to work in the medical camp and examine and treat the children of Mtakutja. Special thanks go to the translators and local helpers Peris Liverson, Elda Frederick, Hysinta Massawe, Zulfa Juma, Felista Haule, Sister Makinyange, Elizabeth Alexander, Irene Christosia, Elisabeth Daniel and Ibrahim Lema. We hope they will continue to inspire their communities in the same way they inspired us as they play a vital role in spreading awareness and knowledge about health and its importance for children in reaching their developmental potential. Special thanks go aswell to the Antonia Stephen, HIV/AIDS counselar and Ahmed Ulimwengu, dentist, both staff

of the TPC hospital for being part of the MCC carrousel. We thanks Christine Kleinveld and Haike Rieks for their interest and for being part of the MCC carrousel.
We would also like to thank doctor Harry Mwerinde of TPC hospital for all the work he did to make this MCC mission a success. We were delighted to welcome the eye doctor of the Kilimanjaro Christian Medical Centre (KCMC) Chantal Giramahoro and Augusto Zambaldo with the team of CCBRT on location and enjoyed working together and learning from each other.

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.

Medical Checks for Children on location:

The medical checks of the 1226 children were performed in seven days at two different locations. The first three days MCC was based at the Mtakuja Primary school, and the last four days at the Mserikia Primary School, with the last day special attention for the children from Remiti. During the free of costs medical checks, the children were checked following the MCC carrousel:

1. Registration of the child
2. Measuring height and weight
3. Blood test (haemoglobin)
4. Physical examination by a medical doctor
5. Giving medication (pharmacy)
6. Education on tooth brushing (a tooth brush was given to each child)

An additional seventh station was added to the MCC carrousel:

7. HIV/AID counselling

At each station, and specially at physical examination and pharmacy station, education was given to the children and their care takers on good nutrition and hygiene.
The MCC team paid special attention to the prevalence, treatment and prevention of anaemia, growth abnormalities, worm infections and HIV/Aids.

At registration, efforts were made in order to retrieve the forms of all children seen last year in the medical camp. Of all children seen in this year, 803 children (65%) were also checked in 2009.

Furthermore, on two days the Tanzanian organisation CCBRT, based on Moshi, joined the medical camp to investigate handicapped children. During their visit CCBRT, investigated and questioned handicapped children and their parents. For each child they set up a programme in order to support the children with disabilities and to assist parents. Several children and parents seen at the medical camp were invited by CCBRT to join a week of intensive training at the CCBRT office in Moshi. CCBRT made appointments for further assessment and surgery (eyes, orthopaedics, neurosurgery). In addition, an outreach programme was set up in Mtakuja by CCBRT to give further follow-up and to investigate the presence of more children with disabilities in Mtakuja.
Based on the findings of the medical camp, a social programme to support parents and children who need special attention (e.g. neglected children)will be set up by Stella Mserikie.

On several days, as part of the medical camp, Ahmed Ulimwengu, the dentist of TPC hospital, investigated children with caries with pain and referred children to TPC hospital for further investigation and treatment.

On the last day of the medical camp eye doctor in training at the KCMC hospital, Chantal Giramahoro, joined the medical camp. All children with eye problems seen during the week of the medical camp, were requested to return to the medical camp on this last day. Doctor Giramahoro investigated these children, treated them on location or referred them to KCMC hospital.

It should be noted that FD Kilimanjaro supported the children who were referred to TPC and KCMC hospital financially.

At the end of the MCC carrousel, the data of the checked children were put in the MCC data base which made it possible to make a quick scan of children's health every evening.

All sub villages of Mtakuja (see Table 1) are poor rural areas. Mtakuja consists of several sub villages: Mserikia, including the sub villages Mafuriko and Mbeya Kubwa, Risavu, Mabatini, Josho and Upareni. Remiti, solely existing of Masai, is technically not a "subvillage".

During the week, MCC checked 1227 children. Due to the high risk of mortality and morbidity under five years of age, the focus of MCC is checking young children.
Off all checked children, 99.5 % of the children had the age of twelve years or younger and 37% of the children had the age of five or younger.

Table 1 *Summary of number check-ups per geographical location by age and gender*

LOCATION	Josho		Upareni		Mabatini		Risavu		Mbeya Kubwa		Mafuriko		Remiti		Total	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Total	234	100%	127	100%	151	100%	71	100%	242	100%	310	100%	92	100%	1227	100%
Age																
>=0 and <1	8	3%	9	7%	5	3%	1	1%	19	8%	32	10%	7	8%	81	7%
>=1 and <5	63	27%	39	31%	40	26%	21	30%	77	32%	87	28%	39	42%	366	30%
>=5 and <12	162	69%	77	61%	106	70%	48	68%	145	60%	190	61%	45	49%	773	63%
>=12 and <18	1	0%	2	2%	-	-	0	0%	1	0%	1	0%	1	1%	6	0%
Boy	102	44%	59	46%	73	48%	38	54%	123	51%	156	50%	45	49%	596	49%
Girl	131	56%	68	54%	78	52%	33	46%	119	49%	154	50%	47	51%	630	51%
School	166	71%	76	60%	124	82%	54	76%	147	61%	167	54%	22	24%	756	62%
Non-school	68	29%	51	40%	27	18%	17	24%	95	39%	143	46%	70	76%	471	38%

We identified 757 (62%) children who are going to schools with the food program of FD Kilimanjaro. There might be a bias in these data, since we are not sure if all children identified as school children are actually going to FD Kilimanjaro Food Program School. Of course, these children, called "school" in the presented tables have a school-age age. Because of age differences they cannot be compared with the whole group of non-school children.
Off all checked children 62% went to school. Although a high number of children < 5 years were checked from Remiti, the low number of children going to school is noticed.

Some of the major diagnoses and ailments are presented in table 2.
Most of the ailments, except the dental problems, could be treated on the spot.

We referred 48 children to medical specialists in the TPC Hospital for further diagnoses and/or treatment, 69 children for a blood test after 3 months to TPC Hospital (due to low Hb) and 23 children to the dentist (at location during the medical camp).

Furthermore, 21 children were seen by CCBRT.
In order to support follow-up by FD Kilimanjaro and TPC hospital, lists of children referred to TPC for a medical specialist or blood test after 3 months were send by MCC to Gerbert Rieks and Harry Mwerinde.
Details on follow-up per geographical location are included in Appendix A.
In addition, details on used medication are given in Appendix B.

Table 2 *Frequency of major diagnoses per geographical location*

Major diagnoses	Anaemia		Deep Anaemia		Dermatomycosis		Pneumonia		Path. murmur		Painful caries		Active worm infection	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Josho	110/230	48	12/230	5	19/234	8	9/234	4	4/234	2	1/134	0	14/234	6
Upareni	41/125	33	1/125	1	21/127	17	4/127	3	1/127	1	1/127	1	10/127	8
Mabatini	64/150	43	5/150	3	6/151	4	2/151	1	1/151	1	4/151	3	12/151	8
Risavu	21/68	31	2/68	3	3/71	4	0/71	0	4/71	6	2/71	3	0/71	0
Mbeya Kubwa	82/240	34	13/240	5	24/242	10	14/242	6	2/242	1	12/242	5	6/242	2
Mafuriko	129/307	42	17/307	6	23/310	7	18/310	6	2/310	1	9/310	3	6/310	2
Remiti	52/91	57	18/91	20	20/92	22	6/92	7	2/92	2	2/92	2	0/92	0
Total	**449/1211**	**41**	**68/1211**	**6**	**116/1227**	**9**	**53/1227**	**4**	**16/1227**	**1**	**31/1227**	**3**	**48/1227**	**4**

1: Growth abnormality and malnutrition:
(underweight: 14% (167/1221), stunting: 14% (152/1220), wasting: 12% (103/752))

A recent report of the World Bank shows that one percent decrease in adult height due to childhood stunting correlates with 1.4% loss of productivity. The report shows furthermore the fact that stunting in general is associated with as much as eleven points decrease in Intelligence Quotient (IQ).
Percentages of growth retardation is correlated with poverty, malnutrition, living conditions, hygiene and the prevalence of chronic diseases.
According to UNCCA the two major causes of malnutrition are poor feeding practices and inadequate childcare. Adequate food intake and education programs addressing nutrious food need to be provided.
Malnutrition is thought to account for one third of all deaths of children under five years of age (UN Millennium Developmental Goals).

The World Health Statistics of 2008 shows in Tanzania a prevalence of 21.8 % underweight children and 37.7 % stunted children reflecting chronic malnutrition. Of the people in Tanzania 22% live below the "food poverty line".

The survey of FD Kilimanjaro in the Mtakuja in 2008 showed that 37% of the families live on just one meal a day, 42% get two and 21% get three meals a day. The same survey noted that the typical household's diet is additionally very low in diversity of food products.

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

- Underweight = weight for age at or under the third percentile of the reference population (WHO growth curves), only children up to 10 years old. This is an indicator of malnutrition or weight loss because of disease.
- Wasting = weight for height at or under the third percentile of the reference population(WHO growth curves), only children up to 120 cm in height. This is an indicator of acute malnutrition.
- Stunting = height for age at or under the third percentile of the reference population, (WHO growth curves) only children up to 19 years of age. This is an indicator of chronic malnutrition.

Stunting, or low height for age, is caused by long-term insufficient nutrient intake and frequent infections. Stunting generally occurs before age two, and effects are largely irreversible. Wasting, or low weight for height, is a strong predictor of mortality among children under five. It is usually the result of acute significant food shortage and/or disease. Underweight encompasses both stunting and wasting.
Data on stunting were complete as opposed to underweight and wasting data. However, estimation of age is sometimes troublesome without official documents stating date of birth

and children or even parents not knowing children's age, making the stunting data less reliable than wasting data.

It has to be noted that reference data were only available for certain heights, weights and ages (as specified above), leading to the following general prevalence's of growth abnormalities in Mtakutja:

Table 3a *Prevelance of underweight in all children checked in 2009, in all children checked in 2010, in children checked in 2010 for the second time and in children checked in 2010 for the first time.*

	Underweight							
	Total 2009		Total 2010		Checked in 2009 and 2010		First check 2010	
	N	%	N	%	N	%	N	%
Total	176/1179	15%	167/1221	14%	113/799	14%	54/422	13%
>=0 and <1	14/68	21%	16/81	20%	1/6	17%	15/75	20%
>=1 and <5	68/405	17%	62/364	17%	44/225	20%	18/139	13%
>=5 and <12	94/706	13%	89/771	12%	68/566	12%	21/205	10%

Table 3b *Prevelance of stunting in all children checked in 2009, in all children checked in 2010, in children checked in 2010 for the second time and in children checked in 2010 for the first time.*

	Stunting							
	Total 2009		Total 2010		Checked in 2009 and 2010		First check 2010	
	N	%	N	%	N	%	N	%
Total	251/1188	21%	152/1220	12%	110/799	14%	42/421	10%
>=0 and <1	24/68	35%	8/81	21%	0/6	0%	8/75	11%
>=1 and <5	107/403	27%	78/364	8%	55/225	24%	23/139	17%
>=5 and <12	117/711	16%	65/770	10%	54/566	10%	11/205	5%

Table 3c *Prevelance of wasting in all children checked in 2009, in all children checked in 2010, in children checked in 2010 for the second time and in children checked in 2010 for the first time.*

	Wasting							
	Total 2009		Total 2010		Checked in 2009 and 2010		First check 2010	
	N	%	N	%	N	%	N	%
Total	78/860	9%	103/752	14%	58/461	13%	45/291	15%
>=0 and <1	9/66	14%	17/80	21%	2/6	33%	14/74	20%
>=1 and <5	35/401	9%	52/356	15%	33/217	15%	19/139	14%
>=5 and <12	34/393	9%	34/316	11%	23/238	10%	11/78	14%

The frequency of underweight, wasting and stunting of all children checked in 2010 are given in table 3a, b and c. In addition, the figures of 2009 are added for comparative reasons.
Furthermore, the children seen in 2010 were also grouped in children seen for the first time (2010 only) and children seen for the second time (2009 and 2010).
There are no differences seen in growth abnormalities between the groups all checked children in 2009 and 2010. Possibly the time between the both medical camps is too short to expect clear differences.

Table 3d *Prevalence of growth abnormalities in children attending school or not attending school (age >=5 and <12) in 2009 and 2010*

	underweight		stunting		wasting	
	2009	2010	2009	2010	2009	2010
Attending school	7%	10%	9%	6%	3%	11%
Not attending school	15%	28%	20%	27%	5%	12%

In table 3d, a comparison was made between the growth abnormalities seen in children attending school and not attending school, data were available from 2009 and 2010.
The children attending a school (most of them with the FD Kilimanjaro food program) did better on all parameters for growth abnormalities.
In Table 4a and 4b, details on the growth abnormalities per geographical location are given for 2010. More details on the growth abnomalities can be found in the tables in Appendix A.

Table 4a *Prevalence of underweight, wasting and stunting per geographical location in 2010*

	Underweight				Stunting				Wasting			
	n	/	N	%	n	/	N	%	n	/	N	%
Josho	28	/	232	12%	28	/	232	12%	30	/	123	24%
Upareni	14	/	127	11%	13	/	126	10%	9	/	76	12%
Mabatini	11	/	150	7%	11	/	150	7%	7	/	80	9%
Risavu	4	/	68	6%	5	/	68	7%	3	/	38	8%
Mbeya Kubwa	29	/	242	12%	27	/	242	11%	13	/	152	9%
Mafuriko	49	/	310	16%	46	/	310	15%	23	/	208	11%
Remiti	32	/	92	35%	22	/	92	24%	18	/	75	24%
School	73	/	753	10%	50	/	753	7%	34	/	308	11%
Non-school	94	/	468	20%	102	/	467	22%	69	/	444	16%
Total	**167**	**/**	**1221**	**14%**	**152**	**/**	**1220**	**12%**	**103**	**/**	**752**	**14%**

Table 4b *Prevalence of underweight, wasting and stunting per geographical location in 2009*

	Underweight				Stunting				Wasting			
	n	/	N	%	n	/	N	%	n	/	N	%
Josho	54	/		20%	56	/		21%	27	/		9.9%
Upareni	16	/		13%	17	/		14%	3	/		2.5%
Mabatini	16	/		12%	21	/		15%	7	/		5.1%
Risavu	4	/		4.8%	10	/		12%	4	/		4.8%
Mbeya Kubwa	34	/		12%	76	/		26%	11	/		3.7%
Mafuriko	52	/		18%	71	/		25%	26	/		9.1%
Remiti	-	/		-	-	/		-	-	/		-
School	24	/		6.9%	32	/		9.2%	13	/		3.8%
Non-school	152	/		18%	219	/		26%	65	/		7.7%
Total	**176**	**/**	1189	**15%**	**251**	**/**	1188	**21%**	**78**	**/**	860	**6.6%**

The Remiti children were not separately identified in 2009, they were allocated at the subvillage Mafuriko. Therefore an overall group comparison could only be made of the incidences in growth abnormalities from the data from last year and this year.
The amount of growth abnormalities in the group of the children of Rimiti (and also in Josho, though in a lesser extent) are alarming and further investigation for the underlying reasons is required.

In comparison of the Tanzania data, with 21.8 % underweight children and 37.7 % stunted children, the population of Mtakutja seems with the prevalence of underweight in 15% and stunting in 21% of the children a little bit better. The children attending a school with the FD Kilimanjaro food program did better on all parameters for growth abnormality with underweight in 6.9 % for school children and 15.2 % for children who attend no or another school, wasting 2.8% versus 5.4% and stunting in 9% versus 20.3%.

During the medical check-ups, we gave all children and their guardians hygiene and nutritional advise, with emphasis on hand-washing, vitamin C and vegetable intake, so their children may grow healthy and strong. We noticed the policy of a lot of mothers to feed their babies up to the age of one year or even more, almost only with breast milk. For babies, we advised exclusive breastfeeding up to six months and then start with the introduction of normal food. For babies without a mother or a mother without enough milk we discussed the possibilities of breastfeeding by another mother. We noticed this policy is quite normal in early days in the hospital but when a baby is at home a lot of fathers are against getting milk from another woman because of culture believes and the fear of being in dept with the husband of the milk giving woman.

2: Anaemia (441, 41 %)
(see table 5, detailed data on anaemia of the medical camp in 2010 are presented in Appendix A).

Anaemia is the most prevalent micronutrient disorder. In Tanzania no national policy has been implemented 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 which, through integrative interventions, addresses the various factors that play a significant role in producing anaemia in a given community. In addition to iron deficiency, infectious diseases such as worm infections, other chronic infections, particularly HIV-AIDS and tuberculosis, malaria, as well as other nutritional deficiencies, are especially important.
As pointed out in the paragraph about growth abnormalities, the survey of FD Kilimanjaro in 2008 shows that 37% of the families live on just one meal a day and 42% get only two meals a day. The same survey noted that the typical household's diet is additionally very low in diversity of food products low in fat and low in sources of vitamin C. Maize and some green leafy vegetables dominate the menu on a daily basis; complemented by beans, rice, fish and green bananas on a weekly basis and some meat on a monthly basis.
As in other populations, we found a larger percentage of anaemia in children less than one year of age (57.4%) and children one to five years of age (51.1%).
Because of emotional problems, haemoglobin levels were not determined in 26 children (2.1%); four of them were diagnosed as anaemic based on signs and symptoms.

Table 5 *Prevalence of ANAEMIA per GEOGRAPHICAL LOCATION, in 2009 and 2010*

YEAR	2009				2010				2009				2010			
	Anaemia				Anaemia				Hb ≤ 5				Hb ≤ 5			
NUMBERS	n	/	N	%	n	/	N	%	n	/	N	%	n	/	N	%
Total	**445**	**/**	**1152**	**39%**	**449**	**/**	**1221**	**41%**	**75**	**/**	**1152**	**6%**	**68**	**/**	**1221**	**6%**
Josho	98	/	269	36%	110	/	230	48%	17	/	264	6%	12	/	230	5%
Upareni	34	/	117	29%	41	/	125	33%	3	/	115	3%	1	/	125	1%
Mabatini	49	/	136	36%	64	/	150	43%	9	/	130	7%	5	/	150	3%
Risavu	23	/	82	28%	21	/	68	31%	5	/	78	6%	2	/	68	3%
Mbeya Kubwa	138	/	292	47%	82	/	240	34%	27	/	289	9%	13	/	240	5%
Mafuriko	103	/	284	36%	129	/	308	42%	14	/	275	5%	17	/	308	6%
Remiti	-		-	-	52	/	91	57%	-	/	-	-	18	/	91	20%
Unknown	2	/	1192	0.2%	16	/	1227	1.3%	38	/	1190	3%	16	/	1227	1.3%
School	70	/	321	22%	248	/	746	33%	-	/	-	-	27	/	746	4%
Non-school	74	/	276	27%	251	/	465	54%	-	/	-	-	41	/	465	9%

Anaemia was less prevalent in children attending school (33%) compared with children not attending school with the FD Kilimanjaro food program (54%). This difference most probably reflects the benefits of the school food program, which confirms the importance of nutrition in respect to anaemia and, hence, to health in general. Still, the (growing) amount of anaemic children in the FD Kilimanjaro food program gives rise to re-consider the composition of the food program.
The high incidence of anaemia in Josho and Remiti, might be related to the high number of Masai people in both villages. However, this preliminary conclusion, needs further investigation.

We treated the children with anaemia (and their mothers if they were breast fed) with supplements for three months. Of 1227 children, 240 (20%) were given iron tablets or iron syrup, 425 (35%) were given multivitamins. Iron supplements were given to 93 (8%) mothers breast-feeding a child with anaemia.
In 68 children (6%) the haemoglobin level equals or was less than 5.0 mmol/l (see Table 5). These children were referred to the TPC Hospital for further diagnostic procedures. We asked for a re-check of the haemoglobin level after 3-months, including HIV test, TB and exclusion of sickle cell anaemia (an inborn malformation of the red blood cells). At the time of the writing

of the report these results were not yet available, however, re-checks were already planned for November 22 and 23 2010 by FD Kilimanjaro in cooperation with TPC hospital.
As pointed out in the paragraph of growth abnormalities, we gave during the medical check-ups all children and their guardians nutritional advise with emphasis on vegetable intake and vitamin C. When it comes to the prevention of anaemia, the vitamin C intake is important because vitamin C facilitates the uptake of iron in the gut (as milk and tea counterparts it). Cheap and available sources for vitamin C in Tanzania are lemon and passion fruit.

For babies, we advised exclusive breastfeeding up to six months, then start with the introduction of normal food and we discussed the possibilities of donation of breast milk by another woman when the normal supply is lacking.

3: Worm treatment (1037 (85%) prophylactic and 48 (4%) therapeutic) (see table 6)

A strong relationship exists between a Helminth, an Ascaris Lumbricoides, a Hookworm or a T. Trichiura infection and anaemia. In the last years a de-worming program was established in Tanzania where there is a high prevalence of these infections in (school-aged) children. This de-worming program doesn't have a 100% coverage.
Of all children, 55% reported receipt of a anti-worm tablet in the last 6 months. It remains unclear whether the tablets given last year for treatment in February 2010, were included in these figures or not.
Despite the de-worming program, we treated the 1037 (85%) children on the spot with Albendazol. An active worm infection was suspected in 48 (4%) children, compared to 102 (8.6%) children in 2009. They were treated with Albendazol. The incidence of active worm infections in 2010 is considered rather low, when compared to 2009 and to other regions with MCC medical camps (e.g. 9% in Kenia-Nairobi in 2010 or 15% in Malawi-Mulanje in 2010).
Health education on the spot was aimed at increasing awareness of worm transmission, the disabilities caused by intestinal helminth and the importance of the de-worming program every half year.
Simple ways of improving personal hygiene and sanitation through hand washing, nail trimming, wearing of shoes and use of a latrine and clear water supplies were encouraged.
Although all members of a population can be infected by worms, those who are at most risk and would benefit most from preventive interventions are the pre-school (2-5 years), school age children, adolescent girls and women of childbearing age.

Table 6 *Prevalence of prophylactic and therapeutic anti-worm treatment and , in 2009 and 2010*

	2009				2010			
	n	/	N	%	n	/	N	%
Total preventive antiworm treatment	963	/	1190	81%	1037	/	1227	85%
Per age category								
>=0 and <1	3	/	68	4%	4	/	81	5%
>=1 and <5	302	/	405	75%	294	/	366	80%
>=5 and <12	652	/	711	92%	734	/	773	95%
>=12 and <18	6	/	6	100%	5	/	6	83%
Probable acute worm infection	106	/	1189	9%	48	/	1227	4%

4: Pneumonia (in 2010 53 (4%); in 2009 69 (6%) (see table 2)
The 53 children with a severe acute respiratory infection (ARI) were treated with appropriate antimicrobials and home treatment advice.
"Pneumonia", "coughing", "fast/difficult breathing", "chest indrawing" and "inability to suck milk" are the key words used by care-takers indicating a (severe) ARI.
For a doctor normally working in Europe it is amazing how few children have asthma in Tanzania. We saw 7 (0.6%) children with symptoms of bronch(iol)tis. None of the children were diagnosed with asthma.

The principles of the Integrated Management of Childhood Illness (IMCI, see www.who.int/child-adolescent-health/integr.htm) (respiratory rate of 50 breaths per minute or more in a baby of 2 months up to 12 months, and 40 breaths per minute or more in a child of 12 months up to 5 years, lower chest wall indrawing and stridor which is a harsh noise made when the child inhales) for recognition and treatment of a pneumonia were transferred to the local workers and care takers.

5: Suspected pathological Cardiac Murmurs (in 2010 16 (1.3%); in 2009 23 (1.9%)) (see table 2)
The MCC carrousel includes a cardial examination. We suspected 16 children of having a pathological heart murmur, mainly due to a septal defect. Of these 16, 15 were 5 to 12 years old.
Mitral regurgitation and atrial septal defects being the most common heart problems in the third world. For this condition no treatment is available although a good dental situation is essential for a healthy live.
The children and their care takers with the suspected pathological heart murmurs were stressed on teeth brushing procedures. Besides this, they were told and got a written explanation to give their child antibiotics when going to a dentist for a teeth extraction.

6: Stomach ache and other gastrointestinal complaints (see table 7)
During our health checks we encounter a rising percentage of (older) schoolchildren with complaints of stomach pain. In the absence of weight loss, bloating or fever these pains could be stress induced. Pressure on adolescents to succeed academically is well known, alongside with problems at home. Data on milk products sensitivity, gastritis or peptic ulcers are currently lacking as well as the prevalence of Helicobacter pylori bacteria.
Of the 27 children diagnosed with constipation, 22 were children attending the schools with the FD Kilimanjaro food program. The adding of more fat (sunflower oil for example) and stimulation of more fluid intake (water) can probably solve these complaints.
One child was referred to TPC/KCMC hospital with a suspected mal absorption disorder.

Table 7 *Prevalence of GASTROINTESTINAL COMPLAINTS*

DIAGNOSIS	n	/	N	%
Dysenteria	13	/	1227	1%
Dehydration - acute diarrhoea	3	/	1227	0%
Diarrhoea without dehydration	3	/	1227	0%
Obstipation	27	/	1227	2%

7: Ear-Nose-Throat (ENT) (32; 3%, see table 8)
The prevalence of acute ear infections was comparable with the prevalence in the Netherlands.
Chronic or recurrent ear infections are a common condition encountered by the ENT surgeons in the third world. Effective initiatives for better hygiene and nutrition will play a part in diminishing chronic ear infections and their complications. Treatment of middle ear infections with antibiotics have a big impact in preventing deafness as well.

Table 8 *Prevalence of EAR-NOSE-THROAT COMPLAINTS*

DIAGNOSIS	n	/	N	%
Otitis media acuta	3	/	1227	0%
Otitis media with effusion	9	/	1227	1%
Otitis externa	7	/	1227	1%
Tympanic perforation	2	/	1227	0%
Adenotonsillitis / tonsillitis	8	/	1227	1%
Candida stomatitis	2	/	1227	0%
Hearing impairment	1	/	1227	0%
Total	**32**	**/**	**1227**	**3%**

8: Skin diseases (162; 13%, see Table 9)
Among the skin diseases the following disorders are the most common in children in Africa, pyoderma, tinea capitis, scabies, viral skin disorders (mainly moluscum contagiosum) pedicolosis capitis, dermatitis and reactions due to insect bites.
A peak of prevalence for pyoderma is observed among 5-9 year olds, with a progressive constant decrease over three years of age.
Pyoderma, scabies and tinea capitis are more common in overcrowded households and orphanages. The role of traumatic sores as a predisposing factor for pyoderma is well known. Especially legs and les commonly ears (because of septic ear piercing) is common of posttraumatic pyoderma.
Antifungal cream (eventually in combination with hydrocortison) was given for fungal infections (dermatomycosis) and hydrocortison crème was given for different forms of dermatitis. We saw no lice infection.

Table 9 *Prevalence of SKIN DISEASES*

DIAGNOSIS	n	/	N	%
Wounds n.o.s.	3	/	1227	0%
Eczema n.o.s.	6	/	1227	0%
Dermatomycosis	116	/	1227	9%
Impetigo / furunculosis	12	/	1227	1%
Scabies	10	/	1227	1%
Wounds infected	15	/	1227	1%
Total	**162**	**/**	**1227**	**13%**

9: Eye problems (13; 1%, see table 10)
Especially in the group of children above five years of age a rather common complaint was dry and/or painful eyes. Xerophtalmia can be attributed to Vitamin A deficiency. Vitamin A deficiency effect growth, the differentiation of epithelial tissues and immune competence. The most dramatic impact, however is on the eye and includes night blindness, xerosis of the conjunctiva and cornea and ultimately corneal ulceration and necrosis of the cornea. Vitamin A deficiency occurs when body stores are exhausted and supply fails to meet the body's requirements, either because there is a dietary insufficiency, requirements are increased, or intestinal absorption, transport and metabolism are impaired as a result of conditions such as diarrhoea. The most important step in preventing Vitamin A deficiency is insuring that children's diets include adequate amounts of carotene containing cereals, tubers, vegetables and fruits.
Of the 13 children seen with eye problems, 12 children were seen by the eye specialist during the medical camp. Three children were given chloramphenicol from the MCC pharmacy, 3 children with strabismus were referred to the hospital or to CCBRT for further investigations.

Table 10 *Prevalence of EYE PROBLEMS*

DIAGNOSIS	n	/	N	%
Refractory problems	3	/	1227	0%
Strabismus	3	/	1227	0%
Keratoconjunctivitis	7	/	1227	1%
Amblyopia	2	/	1227	0%
Total	**13**	**/**	**1227**	**1%**

10: Urinary tract infections and genital organs (5, 0.4 %; see table 11)
We performed eight urine screening test in the children with urination related complaints. Some protein will appear in the urine if the level of protein in blood becomes high (infections) even when the kidney is functioning properly. Antibiotics, severe emotional stress and strenuous exercise can interfere with the test. In 3 children we found a urine infection which we treated with antibiotics.
We saw one boy with an inguinal hernia (left), and he was referred to KCMC hospital for surgery. We saw one girl with a closed vagina, and she was also referred to KCMC by CCBRT (on October 20 MCC was informed by FD Kilimanjaro that surgery was successfully

completed). One boy with hypospadia was seen, he was referred to hospital after the medical camp in 2009 and surgery was also successfully completed.

Table 11 *Prevalence of URINARY TRACT PROBLEMS*

DIAGNOSIS	n	/	N	%
Epi- / hypospadia	1	/	1227	0%
Inguinal hernia	1	/	1227	0%
Urinary tract infection	3	/	1227	0%
Total	**5**	**/**	**1227**	**0.4%**

11: Dental problems (251, 20%; see table 12)
This Medical Check for Children mission to Tanzania did not include a dentist.
The number of cases mentioned probably underestimate the prevalence of dental disease in the children we checked with severe toothaches and caries. We stressed the care takers of the children with painful caries to take their child to the dentist in TPC Hospital.
We had the impression that the more wealthier the people were, the more painful caries we saw. Maybe this is due to the more buying of sweets and cookies when there is more money available.
After the check local volunteers gave out toothbrushes and educate the people in teeth brushing. The TPC dentist Ahmed Ulimwengu participated in the educational program, and also looked at the children identified with painfull caries. If necessary he referred the children to TPC hospital for further investigation and treatment. In total 23 children were referred to the dentist.

Table 12 *Prevalence of DENTAL PROBLEMS*

DIAGNOSIS	n	/	N	%
Caries n.o.s.	220	/	1227	18%
Caries with pain	31	/	1227	3%
Total	**251**	**/**	**1227**	**20%**

12: Neuromusculair and Skelet problems (see Table 13)
In 2009 in a population of 1190 children we found only two children with a psychomotoric retardation. MCC expected that there should be more children with neurologic problems. Therefore FD Kilimanjaro investigated the possibilities to get more children with psychomotoric retardations and skeletal problems to the medical camp of 2010. FD Kilimanjaro informed the villagers and invited CCBRT to the medical camp. In total 21 children were seen by CCBRT and were included in their outreach programmes. Seven of these children were diagnosed with psychomotoric retardation, 3 with hypertonia, 3 with hypotonia and 3 with learning difficulties. CCBRT visits the handicapped children twice a week to give further follow-up and to investigate the presence of more children with disabilities in Mtakuja. In addition, several children were included in a social programme of Stella Msarikie of FD Kilimanjaro, based on suspicion of neglect or abuse.
One boy was seen with congenital deformities of both wrists, he was referred to CCBRT (on October 20 MCC was informed by FD Kilimanjaro that surgery on both hands was successfully completed).

Table 13 Prevalence of NEUROMUSCULAR AND SKELETAL PROBLEMS

DIAGNOSIS	n	/	N	%
Psychomotoric retardation	7	/	1227	1%
Hypertonia	3	/	1227	0%
Hypotonia	3	/	1227	0%
Epilepsy	1	/	1227	0%
Learning difficulties	3	/	1227	0%
Arltralgia	1	/	1227	1%

13: HIV-AIDS, TB and malaria

The diagnosis "suspected HIV/Aids", "possible malaria" and "TB" were either children who told us spontaneously or on request they were on treatment for the disease or the MCC doctor suspected the mentioned disease.
One child was diagnosed with AIDS, in four children HIV was suspected; these children were referred to the hospital for diagnosis and treatment.
Seven children told us a recent blood smear had been tested positive for malaria parasites.
In 3 children malaria was suspected, they were referred to the TPC Hospital.
We suspected TB in one boy and referred him. TB was confirmed by TPC hospital.
All children with low Hb (<5), were referred to TPC hospital for a re-check in November 2010. These children will all be checked for TB, sickle cell anaemia, HIV and malaria. These re-checks are planned for November 22 and 23, so results are not yet available.

Education health workers, caretakers and other local helpers:
One of the important tasks of MCC is to encourage the continuation of education of the caretakers and older children. During our week we had teaching sessions on common diagnoses of frequent illnesses and medication. We especially focused on anaemia and malnutrition, on balanced diet, infection, parasites and failure to thrive. Our information mainly consisted of knowledge and practical advice about nutritious food and vitamin supplements, as well as hygienic and health promotion issues.

Future medical needs:

- The people in Mtakuja need more clean water for drinking and hygiene purposes. We noticed that the water supply to schoolchildren is not improved since 2009.
- We strongly advise FD Kilimanjaro to provide safe drinking water options in the village. Providing a stable source of clean drinking water at the schools is especially important for lessons in hygiene and for giving the children a source of save drinking water when they are at school.
- We recommend investigation of the currently available drinking water, with special emphasis on the content of fluor because a high prevalence of children with fluorosis was noted.
- It is important to stress, over and over again, the importance of regular (half yearly) de-worming off all children up to fourteen year of age. Maybe FD Kilimanjaro can help to organize up an anti-worm program for the whole village. As all children were given preventive treatment with albendazole in August, follow-up should be given in February 2011.
- Like all the locations we visited, also in Mtakutja there is a strong need for comprehensive and systematic health promotion and preventive measures. Special emphasis needs to be put on personal hygiene (starting with the importance of hand washing with soap), dental care, good eating habits and nutrious food (including teaching of how to prepare the food in a way the nutrious parts will stay in it).
- Maybe FD Kilimanjaro can help to start a health education program for pregnant woman and young mothers with special attention for breastfeeding and good motherhood.
- There is a need to find a method for keeping relevant information with the child (like the need of antibiotics before dental extraction in children with a cardial septal defect).
- We recommend FD Kilimanjaro the addition of more fat, fibers (e.g. fruit and vegetables) and a vitamin C source to the school food program.
- We recommend a shorter time of cooking the vegetables so the nutrious parts of the food will stay in it.
- We recommend investigating the possibilities for FD Kilimanjaro to join a Vitamin A program, in order to reduce the occurrence of eye-problems.
- We recommend further investigations of the higher incidence of chronic health problems seen in Remiti and Josho (e.g. anemia and underweight) when compared to the other villages.

- We recommend investigating improving the accessibility of the children to TPC hospital.
- We recommend to support the social program set up by Stella Msarikie of FD Kilimanjaro during the medical camp.

Last words:
Our second trip to Mtakuja has been again a wonderful experience in our lives and in the lives of the team members. Witnessing the evolution of the programs and the development of local expertise is exciting. It is stimulating to work with team members and local translators from different background, exchanging ideas and to learn from each other.
Our special personal thanks goes to Gerbert Rieks and Stella Mserikie from FD Kilimanjaro, who organised the medical camp in close cooperation with MCC. We also would like to thank all translators, CCBRT, TPC hospital, and KCMC hospital for their cooperation and enthusiasm. We would love to work together with them next year.
We hope to return to Tanzania next year to see the improvements of the program in Mtakutja and work together again with all the people who put their time and energy in creating a better world for all of us.
We are looking forward to return to the children of Mtakuja in 2011!

Karlien Bongers, MD, General Surgeon, mission leader MCC Tanzania-Mtakuja 2010
Iris van de Gevel, MSc, Toxicologist, organisational end-responsible Tanzania-Mtakuja 2010

Amsterdam, 19 November 2010

Appendix A: Detailed data on prevalence of diagnose

*Table A1a Prevalence of Weight/age ≤P3 per geographical location by age and gender (**underweight**) **All in 2010***

LOCATION	Josho	Upareni	Mabatini	Risavu	Mbeya Kubwa	Mafuriko	Remiti	Total
Total	28 / 232 12%	14 / 127 11%	11 / 150 7%	4 / 68 6%	29 / 242 12%	49 / 310 16%	32 / 92 35%	167 / 1221 14%
Unknown	2 / 234 1%	0 / 127 0%	1 / 151 1%	3 / 71 4%	0 / 242 0%	0 / 310 0%	0 / 92 0%	6 / 1227 0%
Per age category								
>=0 and <1	2 / 8 25%	1 / 9 11%	0 / 5 0%	0 / 1 0%	6 / 19 32%	5 / 32 16%	2 / 7 29%	16 / 81 20%
>=1 and <5	9 / 63 14%	4 / 39 10%	4 / 40 10%	0 / 19 0%	11 / 77 14%	13 / 87 15%	21 / 39 54%	62 / 364 17%
>=5 and <12	17 / 161 11%	9 / 77 12%	7 / 105 7%	4 / 48 8%	12 / 145 8%	31 / 190 16%	9 / 45 20%	89 / 771 12%
>=12 and <18		0 / 2 0%			0 / 1 0%	0 / 1 0%	0 / 1 0%	0 / 5 0%
Boy	9 / 100 9%	7 / 59 12%	6 / 72 8%	2 / 38 5%	15 / 123 12%	26 / 156 17%	21 / 45 47%	86 / 593 15%
Girl	19 / 131 15%	7 / 68 10%	5 / 78 6%	2 / 30 7%	14 / 119 12%	23 / 154 15%	11 / 47 23%	81 / 627 13%

*Table A2 Prevalence of Height/age ≤P3 per GEOGRAPHICAL LOCATION by AGE and GENDER (**stunting**) **All in 2010***

LOCATION	Josho	Upareni	Mabatini	Risavu	Mbeya Kubwa	Mafuriko	Remiti	Total 2010
Total	28 / 232 12%	13 / 126 10%	11 / 150 7%	5 / 68 7%	27 / 242 11%	46 / 310 15%	22 / 92 24%	152 / 1220 12%
Unknown	2 / 234 1%	1 / 127 1%	1 / 151 1%	3 / 71 4%	0 / 242 0%	0 / 310 0%	0 / 92 0%	7 / 1227 1%
Per age category								
>=0 and <1	3 / 8 38%	1 / 9 11%	0 / 5 0%	0 / 1 0%	3 / 19 16%	1 / 32 3%	0 / 7 0%	8 / 81 10%
>=1 and <5	13 / 63 21%	6 / 39 15%	6 / 40 15%	2 / 19 11%	13 / 77 17%	21 / 87 24%	17 / 39 44%	78 / 364 21%
>=5 and <12	12 / 161 7%	5 / 76 7%	5 / 105 5%	3 / 48 6%	11 / 145 8%	24 / 190 13%	5 / 45 11%	65 / 770 8%
>=12 and <18	0 / 0 n.a.	1 / 2 50%	0 / 0 n.a.	0 / 0 n.a.	0 / 1 0%	0 / 1 0%	0 / 1 0%	1 / 5 20%
Boy	10 / 101 10%	8 / 58 14%	6 / 72 8%	4 / 38 11%	14 / 123 11%	29 / 156 19%	15 / 45 33%	86 / 593 15%
Girl	18 / 130 14%	5 / 68 7%	5 / 78 6%	1 / 30 3%	13 / 119 11%	17 / 154 11%	7 / 47 15%	66 / 626 11%

*Table A3 Prevalence of Weight/height ≤P3 per GEOGRAPHICAL LOCATION by AGE and GENDER (**wasting**) **All in 2010***

LOCATION	Josho	Upareni	Mabatini	Risavu	Mbeya Kubwa	Mafuriko	Remiti	Total 2010
Total	30 / 123 24%	9 / 76 12%	7 / 80 9%	3 / 38 8%	13 / 152 9%	23 / 208 11%	18 / 75 24%	103 / 752 14%
Unknown	111 / 234 47%	51 / 127 40%	71 / 151 47%	33 / 71 46%	90 / 242 37%	102 / 310 33%	17 / 92 18%	475 / 1227 39%
Per age category								
>=0 and <1	2 / 8 25%	1 / 9 11%	0 / 5 0%	0 / 1 0%	5 / 19 26%	7 / 31 23%	2 / 7 29%	17 / 80 21%
>=1 and <5	14 / 60 23%	4 / 36 11%	4 / 39 10%	0 / 19 0%	7 / 76 9%	9 / 87 10%	14 / 39 36%	52 / 356 15%
>=5 and <12	14 / 55 25%	4 / 31 13%	3 / 36 8%	3 / 18 17%	1 / 57 2%	7 / 90 8%	2 / 29 7%	34 / 316 11%
>=12 and <18	-	-	-	-	-	-	-	-
Boy	6 / 54 11%	3 / 39 8%	2 / 38 5%	1 / 23 4%	8 / 80 10%	10 / 108 9%	11 / 42 26%	41 / 384 11%
Girl	24 / 69 35%	6 / 37 16%	5 / 42 12%	2 / 15 13%	5 / 72 7%	13 / 100 13%	7 / 33 21%	62 / 368 17%

Table A4 Prevalence of ANAEMIA per GEOGRAPHICAL LOCATION by AGE and GENDER All in 2010

LOCATION	Josho			Upareni			Mabatini			Risavu			Mbeya Kubwa			Mafuriko			Remiti			Total		
Total anaemia	110	230	48%	41	125	33%	64	150	43%	21	68	31%	82	240	34%	129	308	42%	52	91	57%	499	1212	41%
Hb unknown	4	234	1.7%	2	127	1.6%	1	151	0.7%	3	71	4.2%	2	242	0.8%	2	310	0.6%	1	92	1.1%	15	1227	1.2%
Per age category																								
>=0 and <1	8	8	100%	7	9	78%	3	5	60%	1	1	100%			-	14	32	44%	4	7	57%	48	81	**59%**
>=1 and <5	36	61	59%	13	38	34%	19	40	48%	8	20	40%	11	19	58%	51	86	59%	27	38	71%	187	358	**52%**
>=5 and <12	66	161	41%	21	76	28%	42	105	40%	12	46	26%	33	75	44%	64	189	34%	21	45	47%	263	767	**34%**
>=12 and <18			-	0	2	0%			-			-	37	145	26%	0	1	0%	0	1	0%	1	5	**20%**
Boy	45	100	45%	18	58	31%	33	73	45%	11	37	30%	46	123	37%	70	156	45%	27	44	61%	250	591	42%
Girl	64	129	50%	23	67	34%	31	77	40%	10	31	32%	36	117	31%	59	152	39%	25	47	53%	248	620	40%

Table A5 Frequency of Hb ≤ 5 mmmol/l per GEOGRAPHICAL LOCATION by AGE and GENDER All in 2010

LOCATION	Josho			Upareni			Mabatini			Risavu			Mbeya Kubwa			Mafuriko			Remiti			Total		
Total	**12**	**230**	**5%**	**1**	**125**	**1%**	**5**	**150**	**3%**	**2**	**68**	**3%**	**13**	**240**	**5%**	**17**	**307**	**6%**	**18**	**91**	**20%**	**68**	**1211**	**6%**
Per age category																								
>=0 and <1	0	8	0%	0	9	0%	0	5	0%	0	1	0%	2	19	11%	5	32	16%	0	7	0%	7	81	**9%**
>=1 and <5	6	61	10%	1	38	3%	2	40	5%	1	20	5%	5	75	7%	4	86	5%	13	38	34%	32	358	**9%**
>=5 and <12	6	161	4%	0	76	0%	3	105	3%	1	46	2%	5	145	3%	8	188	4%	5	45	11%	28	766	**4%**
>=12 and <18			-	0	2	0%			-			-	1	1	100%	0	1	0%	0	1	0%	1	5	**20%**
Boy	2	100	2%	0	58	0%	1	73	1%	2	37	5%	8	123	7%	12	156	8%	10	44	23%	35	591	6%
Girl	10	129	8%	1	67	1%	4	77	5%	0	31	0%	5	117	4%	5	151	3%	8	47	17%	33	619	5%

Table A6 Frequency of all WORMTREATMENT during last 6 months per GEOPGRAPHICAL LOCATION by AGE and GENDER All in 2010

LOCATION	Josho			Upareni			Mabatini			Risavu			Mbeya Kubwa			Mafuriko			Remiti			Total		
Total	106	232	46%	52	125	42%	70	150	47%	39	70	56%	152	241	63%	178	305	58%	66	90	73%	663	1213	55%
Per age category																								
>=0 and <1	0	8	0%	0	9	0%	0	5	0%	0	1	0%	0	18	0%	0	31	0%	0	7	0%	0	79	0%
>=1 and <5	20	62	32%	12	37	32%	12	40	30%	13	21	62%	46	77	60%	35	87	40%	29	39	74%	167	363	46%
>=5 and <12	86	162	53%	38	77	49%	58	105	55%	26	47	55%	106	145	73%	143	186	77%	37	43	86%	494	765	65%
>=12 and <18	-			2	2	100%	-			-			0	1	0%	0	1	0%	0	1	0%	2	5	40%

Table A7 Frequency of selected Follow-ups per GEOGRAPHICAL LOCATION All in 2010

LOCATION	Josho	Upareni	Mabatini	Risavu	Mbeya Kubwa	Mafuriko	Remiti	Total
Dentist	1 / 234 0%		4 / 151 3%	2 / 71 3%	7 / 242 3%	8 / 310 3%	1 / 92 1%	23 / 1227 2%
Specialist in hospital	6 / 234 3%	3 / 127 2%	7 / 151 5%	3 / 71 4%	13 / 242 5%	10 / 310 3%	2 / 92 2%	44 / 1227 4%
Revisit		1 / 127 1%				2 / 310 1%		3 / 1227 0%
X-thorax	3 / 234 1%							3 / 1227 0%
Urine + Kidneyfunction				1 / 71 1%				1 / 1227 0%
Bloodtest after 3 months	12 / 234 5%	1 / 127 1%	5 / 151 3%	2 / 71 3%	13 / 242 5%	18 / 310 6%	18 / 92 20%	69 / 1227 6%
CCBRT	7 / 234 3%	3 / 127 2%	1 / 151 1%	2 / 71 3%	1 / 242 0%	4 / 310 1%	3 / 92 3%	21 / 1227 2%

Table A9 Content of School Lunch programma FD Kilimanjaro

Lunch programme Mtakuja 2010

	Maize	Beans	dry	TZS142
Each students gets	167	83	grams	

Nutrition Facts	**Maize / Corn**		Nutrition Facts	**Beans**	
Serving Size:	167 grams		Serving Size:	83 grams	
Amount Per Serving	Calories: 645		Amount Per Serving	Calories: 280	
100 gr = % Daily Value*			100 gr = % Daily Value*		
Total Fat 5g 8%	13 %		Total Fat 1g 1%	1 %	
Saturated Fat 1g 4%	7 %		Saturated Fat 0g 0%	-	
Cholesterol 0mg 0%	-		Cholesterol 0mg 0%	-	
Sodium 13mg 0%	-		Sodium 12mg 0%	-	
Total Carboydrates 75g 24%	40 %		Total Carboydrates 61g 20%	17 %	
Protein 10g 19%	32 %		Protein 23g 45%	37 %	
Vitamin A 0%	-		Vitamin A 0%	-	
Vitamin C 0%	-		Vitamin C 7%	6 %	
Iron 10%	17 %		Iron 37%	31 %	
Calcium 1%	2 %		Calcium 8%	7 %	

*Percent Daily Values are based on a 2000 calorie diet.

Appendix B: Overview of purchased medication

Medication	Units	Bought on location before start	In stock from 2009	Brought from NL	Bought during medical camp	Total for medical camp	Number at end medical camp	Used	Left in stock on location for 2011	To FD Kilimanjaro	To TPC	to NL	Composition
Elydac Syrup (Multivitamin)	100 ml	220				220	39	**181**	39				Per 5 ml: Vit A 1500 UI, Vit B1 0,5 mg, B2 0,5 mg, Nicotinamide 5,0 mg, Vit C 20 mg, Vit D3 250 UI
Megavit Syrup (Multivitamin)	100 ml	30				30	0	**30**					Per 5 ml: Vit A 5000 UI, Vit B1 3 mg, B2 0,856 mg, B6 2 mg, B12 5 mcg, Niacinamide 20 mg, Vit C 10 mg, D Panthenol 5 mg, Vit D3 400 IU.
Enervit Syrup (Multivitamin)	100 ml	350	13		23	386	0	**386**					Per 5 ml: Vit A 1000 UI, Vit B 0,5 mg, B2 0,5 mg, Nicotinamide 5,0 mg, Vit C 20 mg, Vit D3 200 UI
Nutravit					13	13	13	**0**	13				Per 5 ml: Vit A 5000 UI, Vit B1 3 mg, B2 0,856 mg, B6 2 mg, B12 5 mcg, Niacinamide 20 mg, Vit C 10 mg, D Panthenol 5 mg, Vit D3 400 IU.
Rinavit	100 ml		1		24	25	0	**25**					Per 5 ml: Vit A 1000 IU, Vit B1 1.5 mg, Riboflavine 1.5 mg, Nicotinamide 10 mg, B12 2.5 mcg, Vitc C 40 mg, Vit D 200 IU
Multivitamin tabs	Tab	24000			5000	29000	3180	**25820**	3180				Thiamine 1 mg, Pyridoxine 0.5 mg, Riboflavine 1 mg, Vitc C 15 mg, Nicotinamide 7.5 mg, Cal-D-Pantothenate 1 mg
Globin Z	200 ml	165	4			169	27	**142**			27		Per 5 ml: Ferric ammonium Citrate 200 mg (43 mg elementary iron 43 mg), Vit B1 1mg, B2 1 mg, B6 0,5 mg, B12 1 mcg, Foliumzuur 0,25 mg, Zincsulfat 5mg
Hemovit	200 ml				40	40	0	**40**					Per 5 ml: Ferric ammonium Citrate 200 mg (43 mg elementary iron 43 mg), Vit B1 1mg, B2 1 mg, B6 0,5 mg, B12 1 mcg, Foliumzuur 0,25 mg, Zincsulfat 5 mg
Ferrous sulphate tabs	200 mg		20675		5000	25675	0	**25675**					Ferrous 200 mg (65 mg elementair ijzer), FolicAcid 0.25 mg
Ferro tabs	200 mg		6411			6411		**6411**					Ferro 200 mg (65 mg elementair ijzer)
Albendazole tabs	200 mg	240	1080			1320	0	**1320**					Albendazole 200 mg
Albendazole tabs	400 mg	100			1150	1250	454	**796**		454			Albendazole 400 mg
Amoxicillin tabs	250 mg		2056			2056	1100	**956**	1100				Amoxicillin 250 mg
Amoxicillin susp	100 ml		47			47	7	**40**			7		Per 5 ml: 125 mg amoxicillin
Kemoxyl dry mixture (amoxi)	100 ml	50				50	47	**3**	47				Per 5 ml: Amoxycllin 125 mg
Cledomox (co-amoxiclav)	375 mg		417			417	198	**219**			198		Amoxicillin 250 mg, clavulaanzuur 125 mg
Augpen (Amoxi/clav)	625 mg	450				450	450	**0**			450		
Alprim (Co-trimoxazole)	Tab	120				120	57	**63**			57		Sulfametoxazole 400 mg, Trimethoprim 80 mg
Zentrim (co-trim)	480 mg		101			101	101	**0**			101		Sulfamethoxazole 400 mg, Trimethoprim 80 mg
Cotrimoxazol	480 mg		200			200	184	**16**	184				480 mg cotrimoxazol
Lecotrim suspension	100 ml	5				5	0	**5**					Per 5 ml:Trimethoprim 40 mg,Sulphamethoxazole 200 mg
Erocin dry mixture	100 ml	25				25	14	**11**	14				Per 5 ml: erytromycin 125 mg
Erythrokant	250 mg	200	267			467	253	**214**	253				Erythromycin 250 mg
Metronidazole	200 mg			800		800	800	**0**			800		Metronidazole 200 mg
Tinamid (tapeworm)	500 mg	100				100	90	**10**	90				Niclosamide 500 mg
Stromectol	3 mg			40		40	32	**8**				32	Ivermectine 3 mg
Anti scabies soap		19				19	10	**9**	10				
Praziquantil (Bilharzia)	600 mg			20		20	19	**1**				19	Praziquantel 600 mg

Medication	Units	Bought on location before start	In stock from 2009	Brought from NL	Bought during medical camp	Total for medical camp	Number at end medical camp	Used	Left in stock on location for 2011	To FD Kilimanjaro	To TPC	to NL	Composition
Ivyzoxan (eye/ear drops)	5 ml	28	10			38	18	**20**	18				Ciprofloxacin 0.3% w/w, Benzalkonium Cl 0.01%
Burnese (burn cream)	15 g	9				9	6	**3**	6				Acriflavaine 0.1 g, Thymol 5 mg
Silverex (Antimicr cream)	25 g	1				1	1	**0**			1		Silver Sulfadiazine 1%, Chlorhexidine Gluconate 0.20%
Cotrimazole/Beclometasone	15 g	20				20	0	**20**					Clotrimazole 1%, Beclometasone,Diproprionate 0.025%
Gentalene-C cream	10 g	25			12	37	17	**20**	17				Betamethasone 0.05%, Gentamicin 0.10%, Clotrimazole1%
Cuticare (genta/hydroc)	15 g			10		10	0	**10**					Gentamicin, beclomethason, co trimazol
Elycort (cream)	15 g	40		7		47	39	**8**			39		Hydrocortison 1%
Daktacort	15 g			5		5	0	**5**					Nitrate de miconazole 20 mg,hydrocortisone 10 mg
Dermidex	15 g			4		4	0	**4**					Miconazole 2%
Lucin 1% (hydrocort. crème)	15 g			20		20	16	**4**	16				Hydrocortison
Labstatin (nystatin)	30 ml			16		16	7	**9**	7				Nystatin 100 000 IU
Zilversulfadiazine	50 g			9		9	9	**0**	9				Zilversulfazidine 10 mg/g
ORS sachet		10				10	10	**0**	10				
Bandage		10				10	0	**10**					
Jodine solution	40 ml	10				10	2	**8**	2				Jodium
Comycetin 0.5% (eyedrops)	10 ml	16				16	5	**11**			5		Chloramphenicol 50 mg