Introduction

From March 20th untill March 27th 2012, a Medical Checks for Children (MCC) team visited locations near Kisumu and Eldoret in western Kenya. Free of cost, the MCC team checked and treated 1067 children aged newborn untill 13 years of age (including one 17 year old child).

The team consisted of Nadine van Dijk, mission leader and organisation-end-responsible, emergency physician; Karlien Bongers, medical-end-responsible, general surgeon;, Lisette vd Broek, resident emergency physician; Esther Broekhuizen and Paul Lemmens, both family physician; Anne Claire Schreuder and Miranda Wezendonk, both Emergency Medicine nurse; Jankina Ligtvoet, paediatric nurse; Paul de Vries, physiotherapist; Frank van Tunen, accountant and chairman MCC.

Our host patron durning the Kenia stay was Archbishop Makarios, Head of the Orthodox Seminary in Riruta, Nairobi.

After a explorative mission in 2010, MMC visited Kenia West for the third time.

Again, the medical checks were organized in close cooperation with the Sophia Foundation for Children (SFFC) (www.sophia-foundation.com).

Technical equipment and some of the supplies were brought from Europe by the MCC team members. Most of the medication was ordered through SFFC in Kenia. Additional local medication was purchased from the main pharmacy in Nairobi and taken with us to Kenia West.

The cooperation of the Sophia Foundation for Children and the Archbishop Makarios existed out of the following (amongst others):

- Transfer of knowledge about expected diseases, through their earlier work in Kenia.
- Transfer of data on demographics.
- Selection of primary schools and orphanages.
- Arranging accomodation in Kisumu and Eldoret.
- Transportation of the MCC team from the airport, to Kenia Westan and to the check locations.
- Prior announcement of the medical camp in the locations.
- Ordering and delivery of medications.
- Giving support to the MCC team during the medical camp.
- Managing facilitating and (pre)-payment of hospital in/out patient referrals (Riruta Clinic and Coptic Hospital in Nairobi.

The MCC team was delighted by the cooperation with Archbishop Makarios and the strong input of the Sophia Foundation for Children. Our special thanks go Marina Shacola for her preparational work and to Matheos Demetriades for his direct support and enthusiasm in this years mission to Kenya West.

Special thanks go to the translators and teachers.

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.

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 six days at different locations in Kenia West near the cities of Kisumi at Lake Victoria and near Eldoret. The team visited Kesengei Nusery & Primeray at Kesengei; St. Pantelaimon Nursery & Primary Kalamai Bay Nursery, Kimerek Nursery and Kimbonze Nursery at Kimarek; Chipungundi Primary at Chipungundi and St Peter's Kapkechui at Chipita.
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.

For analysing purposes we had to combine certain locations to make data extraction possible (table 1).

Table 1: Pooling of locations for data analysis

Pool of locations:	**Kesengei**	**N**	**Kimarek**	**N**	**Kimarek Primary**	**N**	**St. Pantalaimon**	**N**
Included villages:	Kesengh	160	Kimarek village	17	Kimarek school	163	St. Pantelaimon	26
	Kesenghei village	15	Kapkures	45	Kimerek school	37	St. Patheleimon	20
	Kosengei	3	Kimerek	1			St. Pathteleimon	10
			Kamalabei	29				
			Kimerik	3				
Total		**178**		**95**		**200**		**56**

Pool of locations:	**Chebugundi**	**N**	**Kapkechui**	**N**
Included villages:	Chepaundi	189	Kapkechui	297
	Chepaundi village	23	Kapkechui village	16
	Chepungi village	1		
	Chipugundi	12		
Total		**225**		**313**

Due to the high risk of mortality and morbidity under five years of age, the focus of MCC is checking young children. Off all 1067 checked children (see table 2), 75% of the children had the age of twelve years or younger and 22% of the children had the age of five or younger. The age of the checked children was different at the different locations due to the setting (Kindergarten, school age, supporting vulnerable children). The total amount of checked boys-girls was the same although at some locations the percentage's of checked boy's and girls were not equally divided.

Table 2: Number. age and gender distribution of the 1067 checked children at the different locations

LOCATION	**Total**		**Chebugundi**		**Kapkechui**		**Kesengei**	
	N	%	N	%	N	%	N	%
Total	1067	100%	225	100%	313	100%	178	100%
Age								
>=0 en <1	16	1%	7	3%	5	2%	3	2%
>=1 en <5	237	22%	77	34%	54	17%	43	24%
>=5 en <12	805	75%	140	62%	251	80%	130	73%
>=12 en <18	9	1%	1	0%	3	1%	2	1%
Boy	536	50%	107	48%	152	49%	92	52%
Girl	531	50%	118	52%	161	51%	86	48%

LOCATION	**Kimarek**		**Kimarek Primary**		**St. Pantalaimon**	
	N	%	N	%	N	%
Total	95	100%	200	100%	56	100%
Age						
>=0 en <1	1	1%	0	0%	0	0%
>=1 en <5	38	40%	21	11%	4	7%
>=5 en <12	55	58%	177	89%	52	93%
>=12 en <18	1	1%	2	1%	0	0%
Boy	52	55%	103	52%	30	54%
Girl	43	45%	97	49%	26	46%

Diagnosis and categories of ailments:

During the week, MCC checked 1067 children. The overall health and nutritional status of the children was moderately poor, with 17 %of stunting and 63% of anaemia.

Most of the ailments, except the dental problems, could be treated on the spot.

For more detailed information see table 3 and table1 of the appendix. For treatment given during the medical camp see table 2 of the appendix.

Table 3: Prevalence of selected diagnosis per GEOGRAPHICAL LOCATION

LOCATION	**Total**			**Chebugundi**			**Kapkechui**			**Kesengei**		
	n	N	%	n	N	%	n	N	%	n	N	%
Pneumonia (clinical diagnosis)	15	1068	1%	3	225	1%	2	313	1%	2	178	1%
Dermatomycosis	66	1068	6%	11	225	5%	24	313	8%	11	178	6%
Tinea capitis	66	1068	6%	10	225	4%	34	313	11%	8	178	4%
Physiological murmur	12	1068	1%	0	225	0%	1	313	0%	1	178	1%
Pathological murmur (suspected)	13	1068	1%	1	225	0%	1	313	0%	3	178	2%
Obstipation	14	1068	1%	1	225	0%	1	313	0%	1	178	1%
Activ e worm infection	13	1068	1%	1	225	0%	4	313	1%	6	178	3%
Caries n.o.s.	247	1068	23%	54	225	24%	62	313	20%	53	178	30%
Caries with pain	26	1068	2%	4	225	2%	13	313	4%	2	178	1%

LOCATION	**Kimarek**			**Kimarek Primary**			**St. Pantalaimon**		
	n	N	%	n	N	%	n	N	%
Pneumonia (clinical diagnosis)	8	295	3%	5	200	3%	0	56	0%
Dermatomycosis	16	295	5%	11	200	6%	4	56	7%
Tinea capitis	12	295	4%	8	200	4%	2	56	4%
Physiological murmur	10	295	3%	5	200	3%	0	56	0%
Pathological murmur (suspected)	8	295	3%	6	200	3%	0	56	0%
Obstipation	10	295	3%	7	200	4%	1	56	2%
Activ e worm infection	2	295	1%	2	200	1%	0	56	0%
Caries n.o.s.	61	295	21%	42	200	21%	17	56	30%
Caries with pain	4	295	1%	2	200	1%	3	56	5%

1: Growth abnormality and malnutrition:
(underweight: 15% (164/1067), stunting: 17% (185/1067), wasting: 3% (25/787)
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.

The reported incidence for underweight (Kenya Statistical Factsheet WHO) is 16,5 % and for stunting 36%.

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

LOCATION	**Total**			**Chebugundi**			**Kapkechui**			**Kesengei**		
	n	N	%	n	N	%	n	N	%	n	N	%
Total	164	1067	15%	32	225	14%	15	313	5%	21	178	12%
Not possible	0	1067	0%	0	225	0%	0	313	0%	0	178	0%
Age												
>=0 en <1	2	16	13%	0	7	0%	0	5	0%	1	3	33%
>=1 en <5	29	237	12%	6	77	8%	1	54	2%	4	43	9%
>=5 en <12	133	805	17%	26	140	19%	14	251	6%	16	130	12%
>=12 en <18	0	9	0%	0	1	0%	0	3	0%	0	2	0%
Boy	91	536	17%	16	107	15%	9	152	6%	11	92	12%
Girl	73	531	14%	16	118	14%	6	161	4%	10	86	12%
LOCATION	**Kimarek**			**Kimarek Primary**			**St. Pantalaimon**					
	n	N	%	n	N	%	n	N	%			
Total	31	95	33%	65	200	33%	0	56	0%			
Not possible	0	95	0%	0	200	0%	0	56	0%			
Age												
>=0 en <1	1	1	100%	0	0	0%	0	0	0%			
>=1 en <5	11	38	29%	7	21	33%	0	4	0%			
>=5 en <12	19	55	35%	58	177	33%	0	52	0%			
>=12 en <18	0	1	0%	0	2	0%	0	0	0%			
Boy	14	52	27%	41	103	40%	0	30	0%			
Girl	17	43	40%	24	97	25%	0	26	0%			

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

LOCATION	**Total**			**Chebugundi**			**Kapkechui**			**Kesengei**		
	n	N	%	n	N	%	n	N	%	n	N	%
Total	185	1067	17%	32	225	14%	34	313	11%	24	178	13%
Not possible	0	1067	0%	0	225	0%	0	313	0%	0	178	0%
Age												
>=0 en <1	1	16	6%	0	7	0%	0	5	0%	1	3	33%
>=1 en <5	41	237	17%	12	77	16%	9	54	17%	9	43	21%
>=5 en <12	142	805	18%	19	140	14%	25	251	10%	14	130	11%
>=12 en <18	1	9	11%	1	1	100%	0	3	0%	0	2	0%
Boy	93	536	17%	17	107	16%	15	152	10%	11	92	12%
Girl	93	531	18%	15	118	13%	19	161	12%	14	86	16%

LOCATION	**Kimarek**			**Kimarek Primary**			**St. Pantalaimon**		
	n	N	%	n	N	%	n	N	%
Total	29	95	31%	64	200	32%	2	56	4%
Not possible	0	95	0%	0	200	0%	0	56	0%
Age									
>=0 en <1	0	1	0%	0	0	0%	0	0	0%
>=1 en <5	6	38	16%	5	21	24%	0	4	0%
>=5 en <12	23	55	42%	59	177	33%	2	52	4%
>=12 en <18	0	1	0%	0	2	0%	0	0	0%
Boy	14	52	27%	36	103	35%	0	30	0%
Girl	15	43	35%	28	97	29%	2	26	8%

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

LOCATION	**Total**			**Chebugundi**			**Kapkechui**			**Kesengei**		
	n	N	%	n	N	%	n	N	%	n	N	%
Total	25	787	3%	6	193	3%	1	179	1%	3	136	2%
Not possible	280	0	0%	32	225	14%	134	313	43%	42	178	24%
Age												
>=0 en <1	0	16	0%	0	7	0%	0	5	0%	0	3	0%
>=1 en <5	6	237	3%	2	77	3%	0	54	0%	1	43	2%
>=5 en <12	19	534	4%	4	109	4%	1	120	1%	2	90	2%
>=12 en <18	0	0	0%	0	0	0%	0	0	0%	0	0	0%
Boy	9	391	2%	0	96	0%	0	85	0%	2	69	3%
Girl	16	396	4%	6	97	6%	1	94	1%	1	67	1%

LOCATION	**Kimarek**			**Kimarek Primary**			**St. Pantalaimon**		
	n	N	%	n	N	%	n	N	%
Total	5	91	5%	10	169	6%	0	19	0%
Not possible	4	95	4%	31	200	16%	37	56	66%
Age									
>=0 en <1	0	1	0%	0	0	0%	0	0	0%
>=1 en <5	2	38	5%	1	21	5%	0	4	0%
>=5 en <12	3	52	6%	9	148	6%	0	15	0%
>=12 en <18	0	0	0%	0	0	0%	0	0	0%
Boy	2	49	4%	5	83	6%	0	9	0%
Girl	3	42	7%	5	86	6%	0	10	0%

During the medical check-ups of this year, we paid again attention to issues of hygiene and nutritional advise. For babies, we advised exclusive breastfeeding up to six months and then start with the introduction of additional foods.

We are aware of the financial problems and, because of draught, scarcity of healthy food for many families. This is one the strongest arguments of MCC to link up and cooperate with other organisations, like SFFC, facilitating/paying for school lunches.

2: Anaemia: (63%, 671/1067)
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 (63%) children anemia was diagnosed (see table 7). In ten children (<1 %, 10/1067) the haemoglobin level was less than 5.0 mmol/l; one child was referred last year but didn't follow up and was again referred to the hospital; three others were suspected to have Sickle cell disease and were referred (one was admitted for transfusion); one child had an anemia of chronic disease and was transferred for treatment of an ulcerating eyetumor; one had has Hb checked after months.

In 2011 the prevalence of anemia was 29% with a similar age en sex distribution profile. The increased prevalence this year is found in all checked locations.

Table 7a general prevalence anemia 2012

anaemia	681	63.82%
no anaemia	383	35.90%
unknown	8	0.75%
total	1067	100.00%
Hb < 5	10	0.94%
Anaemia	number	%

Table 7b: prevalence of anaemia per GEOGRAPHICAL LOCATION by AGE and GENDER

LOCATION	**Total**			**Chebugundi**			**Kapkechui**			**Kesengei**		
	n	N	%	n	N	%	n	N	%	n	N	%
Total	671	1067	63%	143	225	64%	218	313	70%	92	178	52%
Hb Unknown	0	0	0%	0	225	0%	0	313	0%	0	178	0%
Age												
>=0 en <1	11	16	69%	5	7	71%	4	5	0%	1	3	33%
>=1 en <5	152	237	64%	56	77	73%	37	54	69%	21	43	49%
>=5 en <12	501	805	62%	81	140	58%	175	251	70%	69	130	53%
>=12 en <18	7	9	78%	1	1	100%	2	3	0%	1	2	50%
Boy	337	536	63%	73	107	68%	100	152	66%	51	92	55%
Girl	336	531	63%	70	118	59%	119	161	74%	42	86	49%

LOCATION	**Kimarek**			**Kimarek Primary**			**St. Pantalaimon**		
	n	N	%	n	N	%	n	N	%
Total	61	95	64%	130	200	65%	27	56	48%
Hb Unknown	0	95	0%	0	200	0%	0	56	0%
Age									
>=0 en <1	1	1	100%	0	0	0%	0	0	0%
>=1 en <5	25	38	66%	11	21	52%	2	4	50%
>=5 en <12	34	55	62%	117	177	66%	25	52	48%
>=12 en <18	1	1	100%	2	2	100%	0	0	0%
Boy	32	52	62%	67	103	65%	14	30	47%
Girl	29	43	67%	63	97	65%	13	26	50%

We treated the children with anaemia (and their mothers if they were breast fed) with supplements for three months (50 % iron, 20% multivatimins and 18 mothers were given iron).
If we suspected a vitamin deficiet and/or a infection we gave multivitamins instead of iron supplements.

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 counterparts it). Cheap and available sources for vitamin C in Kenia are lemon and passion fruit.

3: Worm treatment: (prophylactic 90%, 961/1067; therapeutic 1,4%, 15/1067)
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.
In the last years a de-worming program was established in Kenia where there is a high prevalence of these infections in (school-aged) children yet. Official data show a coverage of this de-worming program of 80%.

Table 8 shows the frequency of worm treattment of the children checked in this years mission in the last six months.

Table 8: Prevalence preventive anti-worm treatment in the last half-year per GEOGRAPHICAL LOCATION by AGE and GENDER

LOCATION	**Total**			**Chebugundi**			**Kapkechui**			**Kesengei**		
	n	N	%	n	N	%	n	N	%	n	N	%
Total	37	1067	3%	3	225	1%	1	313	0%	3	178	2%
Age												
>=0 en <1	0	16	0%	0	7	0%	0	5	0%	0	3	0%
>=1 en <5	18	237	8%	2	77	3%	1	54	2%	0	43	0%
>=5 en <12	19	805	2%	1	140	1%	0	251	0%	3	130	2%
>=12 en <18	0	9	0%	0	1	0%	0	3	0%	0	2	0%
Boy	17	536	3%	1	107	1%	0	152	0%	3	92	3%
Girl	20	531	4%	2	118	2%	1	161	1%	0	86	0%
LOCATION	**Kimarek**			**Kimarek Primary**			**St. Pantalaimon**					
	n	N	%	n	N	%	n	N	%			
Total	10	95	11%	19	200	10%	1	56	2%			
Age												
>=0 en <1	0	1	0%	0	0	0%	0	0	0%			
>=1 en <5	7	38	18%	8	21	38%	0	4	0%			
>=5 en <12	3	55	5%	11	177	6%	1	52	2%			
>=12 en <18	0	1	0%	0	2	0%	0	0	0%			
Boy	3	52	6%	9	103	9%	1	30	3%			
Girl	7	43	16%	10	97	10%	0	26	0%			

Preventive antiworm treatment was given to 90% of all checked children. 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 treated children who were not in a de-worming program and/or an active worm infection was suspected with Albendazol on the spot. Anamnestic information gave us the suspicion of a high prevalence of Taenia Saginata (tape worm) infection. Tape worm can not be treated by Albendazol/Mebendazol. The for this treatment needed niclosamide seems not available in Kenia.

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. MCC left deworming treatment for every checked child at the different locations. Pre- and non- school children got a anti-worm tablet and explanations why and when this treatment should be taken.
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 and school age children.

4: Pneumonia: (15/1067, 1,4%) (see table 2)
"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 15 children with a severe acute respiratory infection (ARI) were treated with appropriate antimicrobials and home treatment advice.
For doctors working in Europe it is amazing how few children have asthma in Kenia. We only saw four children with symptoms of astma/bronchits.

5: Cardial problems: (13/1067, 1,2 %) (see table 1 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 thirteen 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.
One child was already transferred in 2011 for further cardiac investigations and operation but didn't follow up, this year the mother promised to accompany the child to the hospital for an operation. One child with know Sickle cel disease was admitted to the hospital with a pathological heart murmur and signs of decompensation with aneamia for transfusion. The other children were given a card for profylactic antibiotics when needing dental extractions.

6: Skin diseases: (174/1067, 16%)(see table 1 of the appendix)
In respect to skin diseases we saw children with dermatomycoses and tinea capitits both 6,2 % (66/1067), eczema, wounds (burns and infectend wounds) and scabies (5/1067, <1%).
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.
The incidence of tinea capitis 0f 14 % in 2011 was reduced to 6,2 % hopefully due to more awareness in caretakers and school with the hazards of reusing razorblades for shaving childrens heads. In 2011 we stressed that this would be an important improvement for the childrens general health.

7: Eye problems: (16/1067, 1,5%) (see table 1 of the appendix)
Especially in the group of children above five years of age a rather common complaint was dry and/or painful eyes (only five children were reported (see table 1 of the appendix) but this is due to underreporting). 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. We treated children with painful eye's with extra vitamin suppletion and eyedrops.
Refraction problems were reported in two children. One child was transferred to Mukumu Hospital and afterwards to Nairobi with an ulcerating eyetumor; an other blind child with microcornea was referred to the Sabatia Eye Hospital for low Vision Department for schooling.

8: Dental: (caries not otherwise specified: 247/1067,23%; painful caries: 26/1067, 2,4%)
In general a high caries prevalence was found. Four children were referred to the local hospital for dental care (local dentist) because of very poor sanitation and infection.
The high prevalence of caries in this area and the known relation between poor dentation, health and prevalence of disease, would make it benificial in the future to provide dental care in this area.
At the last station of the medical carroussel local volunteers gave out toothbrushes and educated the children and their caretakers in teethbrushing.

9: HIV-AIDS, tuberculosis and malaria
The diagnosis "suspected HIV/Aids", "TB" and "possible malaria" were children who told us spontaneously they were on treatment for the disease. Two children were know to be HIV positive. In one child we suspected malaria. The very low prevalence of these diseases in the checked children is due to a lack of reporting since data of Kenia by the World Health Organisation (WHO) show a under five years of age mortality of 5% due to HIV/AIDS and 11% due to malaria.

10: Other
A two months old boy was referred to Mukumbu Hospital with a hydrocephalus; one child with a scoliosis for an X-ray to exclude serious pathology (TB in the spine). One child with mental retardation and behavioural problems was transferred to a special school with help of the SFFC and an other child was sent to the hospital with a fresh fore-arm fracture for a cast.

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

Future medical needs:
- The children in the locations visited need more clean water for drinking and hygiene purposes. Especially providing a source of clean drinking water at the schools is important for lessons in hygiene and for giving the children a source of save drinking water when they are at school.
- It is important to stress the importance of regular (six monthly) de-worming of all children up to fourteen year of age. We have to find a way to implement such a program.
- Due to an increasing incidence in caries there is an strong need for more education on dental health in the visited rural areas of western Kenya. Efforts should be made to expend the team of 2013 with a dentist to provide some basic dental care and education.
- In all locations visited, 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 nutritious food.
- There is a need to transfer information about health promotion and preventive measures to the mothers/caretakers of the children as well as knowledge of the alarming medical symptoms in children so they can find medical help in time.

Last words:
We feel very fortunate to be able to come back to Kenya and visit Kenya West for the second time. The again KeWe12 mission has been a great team effort and a lasting memory. We are greatfull for the support of Matheos Demetriades and the inspiring presence of our host patron Archbishop Makarios. We feel proud to form a close unit working together with people from different backgrounds and with different goals in life can when the common goal is to help children.

Arnhem, september 2012
Nadine van Dijk, mission leader, organization-end-responsible MCC mission Kenia West 2012
Karlien Bongers, medical-end-responsible MCC mission Kenia West 2012

Appendix Medical Report KeWe2012

Table 1 : Prevalence of selected diagnosis

General	Number	%
HIV positive	2	0.19%
AIDS	0	0.00%
Malaria (suspected)	1	0.09%
RESP	**number**	**%**
Pneumonia (clinical diagnosis)	15	1.41%
Tuberculosis (clinical diagnosis)	2	0.19%
BHR/Asthma	4	0.37%
GI	**number**	**%**
Giardia (suspected)	2	0.19%
Dehydration - acute diarrhoea	4	0.37%
Dehydration - chronic diarrhoea	1	0.09%
Diarrhoea without dehydration	3	0.28%
Obstipation	14	1.31%
Active worm infection	13	1.22%
ENT	**number**	**%**
Otitis media acuta / n.o.s.	2	0.19%
Otitis media with effusion	3	0.28%
Otitis externa	1	0.09%
Hearing impairment	1	0.09%
DENTAL	**number**	**%**
Caries n.o.s.	247	23.15%
Caries with pain	26	2.44%
DERMATO	**number**	**%**
Wounds n.o.s.	8	0.75%
Eczema n.o.s.	2	0.19%
Dermatomycosis	66	6.19%
Impetigo / furunculosis	9	0.84%
Scabies	5	0.47%
Tinea Capitis	66	6.19%
erysipelas / cellulites	1	0.09%
Wounds infected	14	1.31%
Burn wound (fresh)	3	0.28%
NEUROMUSC	**number**	**%**
Psychomotoric retardation	10	0.94%
Hypertonia	3	0.28%
Epilepsy	2	0.19%
Spina bifida	1	0.09%
Migraine / headache	8	0.75%
CARDIO	**number**	**%**
Physiological murmur	12	1.12%
Pathological murmur (suspected)	13	1.22%

EYE	number	%
Refractory problems	2	0.19%
Strabismus	8	0.75%
Keratoconjunctivitis	5	0.47%
Amblyopia	1	0.09%
SKELETAL	**number**	**%**
Fracture (new)	1	0.09%
ABDOMEN	**number**	**%**
Hernia (umbilical. epigastric. cicatric)	4	0.37%

Table 2: Frequency of selected treatments

Medication	number	%
Child iron	536	50.2%
Mother iron	18	1.7%
Multivitamins	213	20.0%
Preventive antiworm treatment	961	90.1%
Acute worm treatment	15	1.4%
Ivermectine (scabies treatment)	6	0.6%
Amoxicilline	7	0.7%
Augmentin	9	0.8%
Claritromycine/erythromycine	5	0.5%
Metronidazol	1	0.1%
ORS	2	0.2%
Eardrops	2	0.2%
Hydrocortison cream	4	0.4%
Dactarin cream	7	0.7%
Selsun	56	5.3%
Dactacort cream	8	0.8%
Fusidin cream	9	0.8%
Flammazine	1	0.1%
Eyedrops	3	0.3%

Table 3: Frequency of selected Follow-ups

Follow-up	N	%
Dentist	4	0.37%
Specialist in hospital	15	1.41%
Revisit	3	0.28%
Bloodtest after 3 months	1	0.09%
International organisation	13	1.22%