Medical Report
Kenia, Nairobi 2014

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Introduction

From the 2nd up to the 8th April 2014, a team of Medical Checks for Children (MCC) visited Nairobi, Naiwasha and Nyeri in Kenia and checked and treated, free of cost, 1057 children.
In the last years MCC conducted an explorative mission in August 2008 to Nyeri and five MCC missions to Nairobi in March 2009, 2010, 2011, 2012 and 2013.

The MCC mission KeNa14 team was headed by Karlien Bongers, medical-end-responsible and mission leader, general surgeon and Anne Vlietstra, organization-end-responsible, family doctor in daily life.
The team was completed by the three family doctors Hanneke Hamers, Adri van Mastrigt, and Frans Fluitsma; Steven van Haelst, trainee surgery, paediatric nurse Jankine Ligtvoet, health scientist Nel Mocking, manager Marie Jose van der Sandt and formal nurse Tineke van Leeuwen.

Again, our host patron during the Kenia stay was Archbishop Makarios, head of the Orthodox Seminary in Riruta, Nairobi and 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.

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

- Transfer of data on demographics.
- Selection of primary schools and orphanages.
- Providing facilitating board and lodging of all MCC team members.
- Transportation of the MCC team from the airport and transportation to the check locations.
- Prior announcement of the medical camp in the locations.
- Ordering and delivery of medications.
- Giving all kinds of support to the MCC team during the medical camp.
- Managing facilitating and (pre)-payment of hospital in/out patient referrals to the Riruta Clinic and the Coptic Hospital in Nairobi.

The MCC team was delighted by the cooperation with Archbishop Makarios, the strong input of the Sophia Foundation for Children and the opportunity to work together with a team of dentists of Cyprus. We like to thank all SFFC members for their preparational work.

This medical report is a summery of the collected data during the medical camp and is focused on quantitative data. These quantitative data are only one way to look at results and it can not show all the huge improvements on individual and structural level we encountered this week

Medical Checks for Children on location:

The medical checks of the children were performed on seven days at different locations (see table 1).
St. Clemens school, St.Pauls school and St.George school in Kibera are supported by the Archbishop Makarios of the Greek Orthodox Church in Africa.
At the St.George school, the Sophia Foundation for Children (SFFC) started a feeding program in 2009.

	02/04/14	03/04/14	04/04/14	05/04/14	06/04/14	07/04/14	08/04/14	Total
Child of God	0	100	0	0	0	0	0	100
Jamii Outreach	0	0	0	0	0	0	46	46
JoySprings	0	5	0	0	0	0	173	178
Kangaroo	0	79	0	0	0	0	0	79
Karantina	0	0	0	0	51	0	0	51
Makarios Home	0	0	0	106	0	0	0	106
Naiwasha	0	0	0	0	0	69	0	69
Nyeri	0	0	0	99	0	0	0	99
Remand Home	0	0	0	0	26	0	0	26
Rest	0	1	0	0	0	0	1	2
St Clemens	147	0	0	0	0	0	0	147
St George	0	0	139	0	0	0	15	154
Total	147	185	139	205	77	69	235	1057

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

The Joy Spring school in Kibera is not structual supported by any organization, though they are involved in an deworming program of the World Health Organization (WHO).
Jamii Outreach is a small school In Kibera nearby St George and Joy spring which was visited for the first time in 2013.
In Navaisha we saw the vulnerable children of whom the local organization called Monica Memorial Development Centre for Needed Children (Mmemo) takes care for and depends on financial gifts of the local church and is supprted by SFFC as well.
In Nyeri the MCC team checked the children from the Makarios Children Home supported by the Sophia Foundation for Children and children attending the local school.

We were planning to visit for third time "The Imani childrens home", located in Kayole, a suburb of Nairobi. "The Imani childrens home", started in 1992, is a charitable children institution (CCI) registered with the Ministry of Gender, children and social development and also has three welfare programs for abandoned and/or abused children and children with imprisoned parents. The Imani Childrens home is (partly) sponsored by the Dutch organisation FEMI (www.femi.org). Due to political problems with serious safety concerns we decided at the last moment not to visit them this year.

New in the program was a visit to Child of God School and Kangaroo school. Both are small schools in the slums of Nairobi with no structural support of any organization.
In Nyeri, we visited two new locations: Karantina, a home for mental disabled children and Remand Home, a youth prison. The contrast between these two new location could not have been bigger. In Karantina, the "children" were well taken care for even in the, from a Western point of view, primitive circumstances. The situation in the Remand Home was heartbreaking. Here a mix of young adults are waiting until their case is brought before the court. Their case can be differ from a serious crime to being on the street by themselves.

During their stay, the children are not allowed to go outside an old, dark en dusty classroom without schoolbooks or other (playing) material.

Since one of the main target of the MCC intervention is health education, it is important to see the children together with their care taker. On the different locations it is hard to have the care takers along with their children at the medical check and of cause we see children who don't have parents or where the parents are not around.

We are very happy in the case of the Nyeri school, 83% of the children came with a parent.

At the different locations we checked besides the schoolchildren some young non-school-going children from the neighborhood.

Coming back on same locations as the years before, doesn't mean we check the same children. The same amount as children (6-) as last year were not been checked in the past (see table 2 for further details)

	Total		Child of God		Jamii Outreach		Joy Spring		Kangaroo		Karantina		Makarios Home		Naiwasha		Nyeri School		Remand Home		Rest		St Clemens		StGeorge	
	1057		100		46		178		79		51		106		69		99		26		2		147		154	
	N	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
No	631	6-	100	10-	32	7-	93	52%	79	10-	51	10-	38	36%	32	46%	22	22%	26	10-	2	10-	64	44%	92	6-
Yes	426	4-	0	-	14	3-	85	48%	0	-	0	-	68	64%	37	54%	77	78%	0	-	0	-	83	56%	62	4-

Table 2: Children checked last year versus new in the medical camp

We analyzed the data to make a comparison as a group but we did not make a computer analysis on individual basis.

Due to the high risk of mortality and morbidity under five years of age, the focus of MCC is checking young children.

	Total		Child of God		Jamii Outreach		Joy Spring		Kangaroo		Karantina		Makarios Home		Naiwasha		Nyeri		Remand Home		St Clemens		St George	
	1057		100		46		178		79		51		106		69		99		26		147		154	
Age (years)	N	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
<1	25	2%	0	-	0	-	6	3%	8	1-	0	-	2	2%	0	-	3	3%	0	-	4	3%	1	1%
>1 - <5	239	23%	17	17%	24	52%	33	19%	29	37%	0	-	20	19%	17	25%	1	1%	0	-	25	17%	73	47%
<5	264	25%	17	17%	24	52%	39	22%	37	47%	0	-	22	21%	17	25%	4	4%	0	-	29	2-	74	48%
≥5 - ≤10	623	59%	76	76%	22	48%	139	78%	40	51%	7	14%	33	31%	50	72%	60	61%	0	-	115	78%	80	52%
>10	170	16%	7	7%	0	-	0	-	2	3%	44	86%	51	48%	2	3%	35	35%	26	10-	3	2%	0	-
Gender																								
Boy	555	53%	53	53%	23	5-	89	5-	38	48%	28	55%	50	47%	38	55%	47	47%	19	73%	86	59%	82	53%
Girl	502	47%	47	47%	23	5-	89	5-	41	52%	23	45%	56	53%	31	45%	52	53%	7	27%	61	41%	72	47%

Table 3: Summary of checked children per geographical location, age and gender

Off all checked children, 25% of the children had the age under five (2012: 27%, 2013 38%), 2% were babies, 25% had an age between five and ten years and 16% was older than 10 years of age.
This relatively large last group is composed by the children in a special program/special location (Makarios home, Nyeri School, Karantina Special Need school and Remand Home).
The age of the checked children was different at the different locations due to the setting (Kindergarten, school age, supporting vulnerable children).This makes the data from the different locations less comparable.

In total the amount of checked boys (53%) was slightly higher than the amount of checked girls (47%). The percentage's of checked boy's and girls were different at the different locations (see table 3).

On each location the children stood in line for the check up in the medical carrousel. They were given a numbered form and were admitted to the first station where their name, age and MCC number were written

on the form by a local helper. This paper was than given to the child who kept it until his or her treatment had been completed. If checked by MCC in former years (53% of total), efforts were taken to collect the form(s) of earlier checks and compare the results on individual basis.

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.

Afterwards the child was sent to the station where the clinical forms were kept after medication was dispensed and information was given with the help of a local worker.
When indicated by the doctors, the child was referred to a local dentist or hospital.
At the end of the medical carrousel, every child got a toothbrush, tooth paste and soap together with instructions for the child and the care taker about how to brush their teeth, proper hand washing and healthy food.
When needed, children were send to the team of dentist from Cyprus.

At locations where a lot of care takers came along with the children and/or where older children were seen, we used an extra station for individual education about healthy (food) habits with (local) examples of healthy food.
Wherever in the medical carrousel we made efforts to include local volunteers (medical workers, teachers, students etc.) in the care of the children.

Diagnosis and categories of ailments:
During the week, the MCC team checked 1057 children in Nairobi, Naiwasha and Nyeri.
Most of the medical cases which received the attention of the MCC team were growth abnormalities (stunting 14%, Underweight 5%, wasting 1%), anaemia (26%), skin problems and worm infections.
Most of the ailments, (except the dental problems, since a dentist was not part of the medical; carrousel), could be treated on the spot.
For more detailed information on all diagnoses see table 4a for comparisson of prevalence of selected diseases with the prevalence in 2012 see table 4b. For treatment given during the medical camp see table 5 and 6 and for information about referrals see table 7.

Table 4a : Disease prevalence among all children per geographical location in 2014

		Total		Child of God		Jamii Outreac		JoySprin gs		Kangaroo		Karantin a		Makarios Home		Naiwasha		Nyeri		Remand Home		St Clemens		St George	
		1057		100		46		178		79		51		106		69		99		26		147		154	
	Underweight	53	5%	7	7%	5	11%	6	3%	4	5%	1	2%	5	5%	10	14%	3	3%	0	-	7	5%	4	3%
	Stunting	132	12%	13	13%	6	13%	9	5%	13	16%	9	18%	32	3-	19	28%	8	8%	10	38%	9	6%	4	3%
	Wasting	18	2%	2	2%	1	2%	1	1%	1	1%	1	2%	2	2%	0	-	2	2%	1	4%	5	3%	1	1%
	Anaemia	354	33%	29	29%	11	24%	38	21%	48	61%	18	35%	58	55%	14	2-	45	45%	4	15%	27	18%	61	4-
1	HIV pos.	12	1%	1	1%	0	-	0	-	1	1%	0	-	6	6%	0	-	1	1%	1	4%	1	1%	1	1%
2	AIDS	8	1%	0	-	0	-	0	-	0	-	0	-	7	7%	0	-	0	-	0	-	0	-	1	1%
3	Malaria (suspected)	2	-	0	-	0	-	0	-	0	-	0	-	0	-	1	1%	0	-	1	4%	0	-	0	-
4	vitamin deficit (clinical signs)	2	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	1	1%	1	1%
5	Bilharzia	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-
9	syndrome n.o.s.	16	2%	0	-	0	-	4	2%	0	-	6	12%	0	-	1	1%	0	-	0	-	1	1%	3	2%
10	pneumonia (clinical)	20	2%	2	2%	0	-	6	3%	1	1%	0	-	3	3%	0	-	2	2%	0	-	5	3%	1	1%
11	pneumonia (X-ray confirmed)	1	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	1	1%	0	-

		Total		Child of God		Jamii Outreac		JoySprings		Kangaroo		Karantina		Makarios Home		Naiwasha		Nyeri		Remand Home		St Clemens		St George	
12	tuberculosis (clinical)	2	-	0	-	0	-	0	-	0	-	0	-	1	1%	0	-	1	1%	0	-	0	-	0	-
13	tuberculosis (X-ray confirmed)	2	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	1	1%	0	-	0	-	1	1%
14	bronchitis	2	-	0	-	0	-	0	-	2	3%	0	-	0	-	0	-	0	-	0	-	0	-	0	-
15	BHR/asthma	3	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	3	2%	0	-
20	gardia (suspected)	1	-	0	-	0	-	0	-	0	-	1	2%	0	-	0	-	0	-	0	-	0	-	0	-
21	dysenteria	3	-	0	-	0	-	1	1%	0	-	0	-	1	1%	0	-	0	-	0	-	1	1%	0	-
22	dehydration : acute diarrhoea	1	-	0	-	0	-	1	1%	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-
23	dehydration : chronic diarrhoea	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-
24	diarrhoea without dehydration	8	1%	0	-	0	-	4	2%	1	1%	0	-	1	1%	1	1%	0	-	0	-	0	-	1	1%
25	constipation	16	2%	4	4%	1	2%	3	2%	2	3%	2	4%	1	1%	0	-	0	-	0	-	3	2%	0	-
26	active worm infection	27	3%	8	8%	1	2%	1	1%	8	1-	0	-	0	-	5	7%	0	-	0	-	0	-	4	3%
27	active lintworm	2	-	0	-	0	-	1	1%	0	-	0	-	0	-	0	-	0	-	0	-	1	1%	0	-
30	otitis media acuta	8	1%	0	-	0	-	1	1%	2	3%	0	-	0	-	1	1%	0	-	2	8%	1	1%	1	1%
31	otitis media with effusion	7	1%	1	1%	0	-	2	1%	0	-	0	-	0	-	2	3%	1	1%	0	-	0	-	1	1%
32	otitis externa	5	-	0	-	1	2%	0	-	0	-	0	-	0	-	1	1%	0	-	0	-	1	1%	2	1%
33	tympanic perforation	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-
34	mastoiditis	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-
35	(adeno)tonsillitis	10	1%	0	-	0	-	0	-	0	-	0	-	2	2%	1	1%	2	2%	0	-	4	3%	1	1%
36	candida stomatitis	4	-	1	1%	0	-	0	-	1	1%	0	-	0	-	0	-	0	-	0	-	1	1%	0	-
37	sinusitis	1	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	1	1%	0	-
38	hearing impairment	2	-	0	-	0	-	2	1%	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-
39	other	2	-	0	-	0	-	1	1%	0	-	0	-	0	-	0	-	1	1%	0	-	0	-	0	-
40	cariës n.o.s.	170	16%	21	21%	3	7%	21	12%	6	8%	12	24%	17	16%	12	17%	22	22%	1	4%	27	18%	27	18%
41	pain n.o.s	7	1%	2	2%	0	-	0	-	0	-	0	-	0	-	2	3%	0	-	1	4%	1	1%	1	1%
42	fluorosis	42	4%	4	4%	1	2%	5	3%	0	-	0	-	8	8%	11	16%	2	2%	0	-	9	6%	2	1%
45	caries with pain	64	6%	3	3%	2	4%	18	1-	2	3%	7	14%	6	6%	2	3%	7	7%	0	-	9	6%	8	5%
50	wounds n.o.s.	1	-	0	-	0	-	0	-	1	1%	0	-	0	-	0	-	0	-	0	-	0	-	0	-
51	eczema n.o.s.	13	1%	0	-	0	-	3	2%	1	1%	0	-	1	1%	0	-	2	2%	0	-	3	2%	3	2%
52	dermatomycosis	42	4%	0	-	3	7%	12	7%	4	5%	2	4%	1	1%	4	6%	3	3%	0	-	10	7%	3	2%
53	Impetigo/furunculosis	8	1%	1	1%	1	2%	0	-	1	1%	0	-	0	-	1	1%	2	2%	1	4%	0	-	1	1%
54	lice	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-
55	scabies	8	1%	0	-	1	2%	0	-	0	-	0	-	1	1%	0	-	3	3%	2	8%	0	-	1	1%
56	erysipelas / cellulites	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-
57	wounds infected,	18	2%	0	-	0	-	0	-	2	3%	4	8%	1	1%	1	1%	3	3%	0	-	4	3%	3	2%
58	insect bite	1	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	1	1%
59	other (psoriasis etc)	39	4%	6	6%	1	2%	1	1%	8	1-	1	2%	7	7%	0	-	4	4%	2	8%	5	3%	4	3%
60	psychomotoric retardation	46	4%	0	-	0	-	0	-	0	-	43	84%	2	2%	1	1%	0	-	0	-	0	-	0	-
61	hypertonia	2	-	0	-	0	-	0	-	0	-	2	4%	0	-	0	-	0	-	0	-	0	-	0	-
62	hypotonia	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-
63	epilepsy	4	-	0	-	0	-	0	-	0	-	2	4%	0	-	1	1%	0	-	0	-	1	1%	0	-
64	spina bifida	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-

		Total		Child of God		Jamii Outreac		JoySprings		Kangaroo		Karantina		Makarios Home		Naiwasha		Nyeri		Remand Home		St Clemens		St George	
65	migraine/headache	6	1%	0	-	0	-	2	1%	3	4%	0	-	0	-	0	-	0	-	0	-	1	1%	0	-
66	meningitis	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-
67	leg kramps	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-
70	physiological murmer	9	1%	0	-	0	-	1	1%	0	-	1	2%	0	-	1	1%	1	1%	2	8%	1	1%	2	1%
71	pathological murmur (suspected)	9	1%	0	-	0	-	1	1%	0	-	5	1-	0	-	2	3%	0	-	0	-	1	1%	0	-
74	refractory problem	3	-	0	-	0	-	0	-	0	-	1	2%	0	-	0	-	0	-	1	4%	1	1%	0	-
75	strabismus	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-
76	keratoconjunctivitis	10	1%	0	-	1	2%	0	-	0	-	1	2%	0	-	0	-	1	1%	1	4%	5	3%	1	1%
77	amblyopia	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-
80	thyroid dysfunction (suspected)	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-
81	diabetes	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-
84	menorraghia	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-
85	amenorrhoea	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-
86	pregnancy	1	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	1	4%	0	-	0	-
90	epi/hypospadia	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-
91	cryptorchism	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-
92	inguinal hernia	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-
93	urinary infection	4	-	0	-	0	-	2	1%	0	-	1	2%	0	-	0	-	0	-	0	-	0	-	1	1%
96	chronic kidney path.	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-
00	artralgia n.o.s.	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-
01	septic arthritis	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-
02	hip dysplasia	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-
03	old fracture	1	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	1	1%	0	-
04	new fracture	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-
07	hernia(umbilical etc)	10	1%	0	-	2	4%	1	1%	0	-	0	-	0	-	0	-	1	1%	0	-	0	-	6	4%

Table 4b : (Selected) Disease prevalence among all children per geographical location in 2014, 2013 and 2012

2014	**Total**			**Jamii Outreach**		**Joy Springs**		**Makarios Home**		**Naiwasha**		**School Nyeri**		**St Clemens**		**St George**	
	1057			**46**		**178**		**106**		**69**		**99**		**147**		**154**	
Underweight	53	5%		5	11%	6	3%	5	5%	10	14%	3	3%	7	5%	4	3%
Stunting	132	12%		6	13%	9	5%	32	3-	19	28%	8	8%	9	6%	4	3%
Wasting	18	2%		1	2%	1	1%	2	2%	0	-	2	2%	5	3%	1	1%
Anaemia	354	33%		11	24%	38	21%	58	55%	14	2-	45	45%	27	18%	61	4-
HIV pos.	12	1%		0	-	0	-	6	6%	0	-	1	1%	1	1%	1	1%
AIDS	8	1%		0	-	0	-	7	7%	0	-	0	-	0	-	1	1%
syndrome n.o.s.	16	2%		0	-	4	2%	0	-	1	1%	0	-	1	1%	3	2%
pneumonia (clinical)	20	2%		0	-	6	3%	3	3%	0	-	2	2%	5	3%	1	1%

2013	**Total**		**Imani**		**Jamii Outreach**		**Joy Springs**		**Makarios Home**		**Nai washa**		**School Nyeri**		**St Clemens**		**St George**		**St Paul**	
	1042		**161**		**48**		**128**		**61**		**72**		**90**		**147**		**217**		**105**	
Underweight	53	5%	12	7%	4	8%	1	1%	3	5%	14	19%	6	7%	5	3%	7	3%	1	1%
Stunting	151	14%	58	36%	12	25%	4	3%	20	33%	19	26%	9	1-	14	1-	10	5%	5	5%
Wasting	12	1%	1	1%	1	2%	0	-	1	2%	1	1%	2	2%	3	2%	1	-	2	2%
Anaemia	275	26%	53	33%	12	25%	21	16%	24	39%	9	13%	43	48%	36	24%	48	22%	26	25%
HIV pos.	18	2%	2	1%	0	-	0	-	8	13%	2	3%	3	3%	1	1%	2	1%	0	-
AIDS(confirmed)	3	-	0	-	0	-	0	-	1	2%	0	-	2	2%	0	-	0	-	0	-
syndrome n.o.s.	8	1%	2	1%	0	-	1	1%	1	2%	1	1%	2	2%	0	-	1	-	0	-
pneumonia	42	4%	6	4%	2	4%	5	4%	2	3%	0	-	3	3%	6	4%	11	5%	5	5%

2012	**Total**		**Imani**			**Joy Springs**		**Makarios home**		**Nai washa**		**School Nyeri**		**St Clemens**		**St George**		**St Paul**	
	1032		**143**			**224**		**64**		**95**		**89**		**142**		**125**		**150**	
Underweight	100	1-	56	39%		5	2%	3	5%	13	14%	6	7%	5	4%	5	4%	7	5%
Stunting	166	16%	83	58%		5	2%	14	22%	22	23%	5	6%	11	8%	12	1-	14	9%
Wasting	43	4%	15	1-		4	2%	1	2%	6	6%	3	3%	6	4%	2	2%	6	4%
Anaemia	251	24%	47	33%		53	24%	15	23%	16	17%	25	28%	45	32%	19	15%	31	21%
HIV pos.	19	2%	6	4%		0	-	12	19%	0	-	0	-	1	1%	0	-	0	-
syndrome n.o.s.	7	1%	1	1%		0	-	0	-	5	5%	0	-	1	1%	0	-	0	-
pneumonia (clinical)	32	3%	7	5%		6	3%	2	3%	5	5%	0	-	7	5%	4	3%	1	1%

Table 5: Treatment among all children per geographical location 2014

	Total		Child of God		Jamii Outreach		JoySprings		Kangaroo		Karantina		Makarios Home		Naiwasha		Nyeri		Remand Home		St Clemens		St Georg
	1057		100		46		178		79		51		106		69		99		26		147		15
ferro	247	23%	23	23%	10	22%	22	12%	31	39%	15	29%	33	31%	9	13%	34	34%	3	12%	16	11%	51	33
mother iron	8	1%	0	-	0	-	3	2%	2	3%	0	-	1	1%	0	-	0	-	0	-	2	1%	0	
multivitamins	188	18%	19	19%	9	2-	21	12%	17	22%	9	18%	35	33%	22	32%	12	12%	10	38%	15	1-	18	12
anti-worm	642	61%	92	92%	45	98%	8	4%	66	84%	1	2%	13	12%	61	88%	57	58%	24	92%	128	87%	147	95
acute worm	31	3%	7	7%	1	2%	3	2%	8	1-	0	-	2	2%	6	9%	0	-	0	-	0	-	4	3
anti-scabies	5	-	0	-	0	-	0	-	0	-	0	-	1	1%	0	-	2	2%	1	4%	0	-	1	1
niclosamide	2	-	0	-	0	-	0	-	0	-	0	-	1	1%	0	-	0	-	0	-	1	1%	0	
amoxicillin	28	3%	3	3%	0	-	6	3%	6	8%	0	-	1	1%	0	-	2	2%	0	-	5	3%	5	3
augmentin	4	-	1	1%	1	2%	1	1%	0	-	0	-	0	-	0	-	1	1%	0	-	0	-	0	
2nd line antibiotica	9	1%	0	-	0	-	1	1%	0	-	2	4%	2	2%	1	1%	2	2%	0	-	1	1%	0	
metranidazol	1	-	0	-	0	-	0	-	0	-	1	2%	0	-	0	-	0	-	0	-	0	-	0	
co-trimoxazol	5	-	0	-	0	-	1	1%	0	-	0	-	3	3%	0	-	0	-	0	-	1	1%	0	
ceftriaxon	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	
AB urine infection	1	-	0	-	0	-	1	1%	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	
paracetamol	2	-	0	-	0	-	0	-	0	-	0	-	1	1%	1	1%	0	-	0	-	0	-	0	
ORS	1	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	1	1
eardrops	16	2%	2	2%	1	2%	1	1%	0	-	0	-	0	-	5	7%	0	-	2	8%	2	1%	3	2
nystatine	4	-	1	1%	0	-	0	-	1	1%	0	-	0	-	0	-	0	-	0	-	1	1%	0	
mupirocine=Bactroban	3	-	0	-	0	-	0	-	2	3%	0	-	0	-	0	-	0	-	0	-	1	1%	0	
hydrocortisone cream	4	-	0	-	0	-	1	1%	0	-	0	-	1	1%	0	-	0	-	0	-	1	1%	1	1
dactarin cream	29	3%	6	6%	1	2%	4	2%	8	1-	1	2%	0	-	1	1%	0	-	0	-	6	4%	2	1
dactacort cream	7	1%	1	1%	1	2%	2	1%	2	3%	0	-	0	-	0	-	0	-	0	-	1	1%	0	
fusidin cream	32	3%	0	-	0	-	0	-	3	4%	3	6%	4	4%	1	1%	6	6%	1	4%	7	5%	7	5
sudo cream	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	
neutral cream	4	-	0	-	0	-	0	-	1	1%	0	-	0	-	0	-	1	1%	0	-	2	1%	0	
iodine	1	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	1	1
Griseofulvine	19	2%	0	-	1	2%	7	4%	0	-	1	2%	1	1%	3	4%	2	2%	0	-	3	2%	1	1
eyedrops	11	1%	2	2%	1	2%	0	-	0	-	1	2%	0	-	0	-	1	1%	1	4%	4	3%	1	1

Table 6: Selected treatment per geographical location visited in 2014, 2013 and 2012

	Total		**Imani**		**Jamii**		**Joy Springs**		**Makarios Home**		**Nai washa**		**School Nyeri**		**St Clemens**		**St George**		**St Paul**	
2014	**1057**				**46**		**178**		**106**		**69**		**99**		**147**		**154**			
Iron child	247	23%			10	22%	22	12%	33	31%	9	13%	34	34%	16	11%	51	33%		
mother iron	8	18%			0		3	2%	1	1%	0		0		2	1%	0			
multivitamins	188	18%			9	2-	21	12%	35	33%	22	32%	12	12%	15	1-	18	12%		
anti-worm	642	61%			45	98%	8	4%	13	12%	61	88%	57	58%	128	87%	147	95%		
acute worm	31	3%			1	2%	3	2%	2	2%	6	9%	0				4	3%		
amoxicillin	28	3%			0		6	3%	1	1%		%	2	2%	5	3%	5	3%		
2013	**1042**		**161**		**48**		**128**		**61**		**72**		**90**		**147**		**217**		**105**	
Iron child	170	16%	22	14%	9	19%	17	13%	13	21%	4	6%	33	37%	30	2-	24	11%	17	16%
mother iron	2	-	0	-	0	-	0	-	0	-	0	-	0	-	1	1%	0	-	0	-
multivitamins	200	19%	62	39%	10	21%	9	7%	22	36%	24	33%	9	1-	20	14%	23	11%	19	18%
anti-worm	502	48%	4	2%	42	88%	5	4%	3	5%	71	99%	74	82%	131	89%	61	28%	104	99%
acute worm	8	1%	1	1%	0	-	3	2%	0	-	1	1%	0	-	1	1%	2	1%	0	-
amoxicillin	70	7%	8	5%	5	1-	11	9%	2	3%	2	3%	2	2%	8	5%	19	9%	10	1-
2012	**1032**			**143**				**224**		**64**		**95**		**89**		**142**		**125**		**150**
Iron child	174	17%	6	4%			47	21%	10	16%	10	11%	20	22%	40	28%	16	13%	25	17%
mother iron	4	-	0	-			2	1%	0	-	1	1%	0	-	1	1%	0	-	0	-
multivitamins	189	18%	88	62%			6	3%	13	2-	28	29%	10	11%	16	11%	13	1-	15	1-
anti-worm	429	42%	1	1%			0	-	0	-	23	24%	1	1%	132	93%	124	99%	148	99%
acute worm	3	-	0	-			0	-	0	-	0	-	0	-	1	1%	2	2%	0	-
amoxicillin	24	2%	5	3%			6	3%	2	3%	5	5%	0	-	3	2%	3	2%	0	-

Table 7a: Follow-up of all children per geographical location in 2014 *(list of the referred children in Appendix)*

	Total		Child of God		Jamii Outreach		JoySprings		Kangaroo		Karantina		Makarios Home		Naiwasha		Nyeri		Remand Home		St Clemens		St George	
	1057		100		46		178		79		51		106		69		99		26		147		154	
Dentist	150	14%	28	28%	3	7%	19	11%	6	8%	7	14%	15	14%	1	1%	11	11%	1	4%	33	22%	26	17%
Specialist in hospital	27	3%	2	2%	0	-	8	4%	1	1%	1	2%	2	2%	2	3%	4	4%	1	4%	2	1%	3	2%
Revisit	1	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	1	1%	0	-
X-thorax	2	-	0	-	0	-	0	-	0	-	0	-	1	1%	1	1%	0	-	0	-	0	-	0	-
ECG	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-
Urine + Kidney function	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-
Bloodtest after 3 months	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-
International organisation	4	-	3	3%	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	1	1%	0	-
Other…	5	-	2	2%	1	2%	0	-	0	-	1	2%	0	-	0	-	0	-	0	-	0	-	1	1%

Table 7b: Selected follow-up of all children per geographical location visited in 2013 and 2014

2014	Total		Jamii		Joy Springs		Makarios Home		Naiwasha		School Nyeri		StClemens		St George	
	1057		46		178		106		69		99		147		154	
Dentist	150	14%	3	7%	19	11%	15	14%	1	1%	11	11%	33	22%	26	17%
Specialist in hospital	27	3%	0		8	4%	2	2%	2	3%	4	4%	2	1%	3	2%
2013	**1042**		**48**		**128**		**61**		**72**		**90**		**147**		**217**	
Dentist	5	-	0	-	1	1%	0	-	1	1%	2	2%	0	-	1	-
Specialist in hospital	25	2%	1	2%	3	2%	2	3%	2	3%	4	4%	5	3%	5	2%

1: Growth abnormality and malnutrition:

Malnutrition has been related to poor cognitive and school performance. There is strong evidence to suggest that malnutrition places children under the age of five 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.

It has to be noted that reference data are only available for certain heights, weights and ages (as specified above), leading to the general prevalence's of growth abnormalities of being underweight 5% (5% in 2013; 1- in 2012), stunting 12% (14 % in 2013; 16 % in 2012) and wasting 2% (1% in 2013; 6 % in 2012).

2014	Total		Jamii Outreach		Joy Springs		Makarios Home		Nai washa		School Nyeri		St Clemens		St George	
	1057		46		178		106		69		99		147		154	
Underweight	53	5%	5	11%	6	3%	5	5%	10	14%	3	3%	7	5%	4	3%
Stunting	132	12%	6	13%	9	5%	32	30%	19	28%	8	8%	9	6%	4	3%
Wasting	18	2%	1	2%	1	1%	2	2%	0	-	2	2%	5	3%	1	1%
2013	**1042**		**48**		**128**		**61**		**72**		**90**		**147**		**217**	
Underweight	53	5%	4	8%	1	1%	3	5%	14	19%	6	7%	5	3%	7	3%
Stunting	151	14%	12	25%	4	3%	20	33%	19	26%	9	1%	14	1%	10	5%
Wasting	12	1%	1	2%	0	-	1	2%	1	1%	2	2%	3	2%	1	-

Analysis of the nutritional status shows significant differences among the locations visited.
Within the children assessed, it is unknown how many children exactly have HIV related weight loss (wasting syndrome) since in only 20 children (2%) HIV positivity/AIDS was reported which seems an underestimation.

The higher percentage of growth abnormalities in Naiwasha (underweight 14% (19% in 2013; 15% in 2012), stunting 28% (26% in 2013; 23% in 2012), wasting 0% (1% in 2013; 9% in 2012) is partly a reflection of the selection of the vulnerable children by the local organisation Monica Memorial Development Centre for Needed Children (Mmemo) and partly biased by age selection.

At Makarios Home we found more stunting in the children older than ten years of age. This seems a refelection of the selection of children living in Nyeri orphage (orphans, streetchildren, children from prison, children with AIDS etcetera) which were not well taken care for at a younger age.
Striking is the fact that although the background of the younger children is the same as the older children, since the children younger than 10 years of age did have less growth disturbance seems to reflect the enourmous importance of a well designed supporting plan for children at a young age including a good and balanced diet.

Table 8: Prevalence of weight/age at or under P3 (underweight) per geographical location by age and gender 2014
(measurable up to10 years of age)

	Total		Child of God		Jamii Outreach		JoySpring		Kangaroo		Karantina		Makarios Home		Naiwasha		Nyeri		Remand Home		St Clemens		St George	
	1057		100		46		178		79		51		106		69		99		26		147		154	
	N	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Underweight	53	6%	7	7%	5	11%	6	3%	4	5%	1	13%	5	8%	10	15%	3	4%	0	-	7	5%	4	3%
No underweight	867	94%	93	93%	40	89%	172	97%	75	95%	7	88%	58	92%	57	85%	71	96%	4	10%	139	95%	150	97%
Unknown	137	13%	0	-	1	2%	0	-	0	-	43	84%	43	41%	2	3%	25	25%	22	85%	1	1%	0	-
r age																								
<=1 year	2	8%	0	-	0	-	1	17%	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-
en <5 years	8	3%	0	-	0	-	0	-	3	1%	0	-	1	5%	1	6%	0	-	0	-	2	8%	1	1%
<5 years	10	4%	0	-	0	-	1	3%	3	8%	0	-	1	5%	1	6%	0	-	0	-	2	7%	1	1%
>=5 & <=10	43	7%	7	9%	5	24%	5	4%	1	3%	1	17%	4	12%	9	18%	3	5%	0	-	5	4%	3	4%
>10 years	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-
r gender																								
Boy	31	6%	4	8%	2	9%	3	3%	3	8%	1	14%	2	6%	7	19%	2	6%	0	-	4	5%	2	2%
Girl	22	5%	3	6%	3	13%	3	3%	1	2%	0	-	3	11%	3	1%	1	3%	0	-	3	5%	2	3%

Table 9: Prevalence of length/age at or under P3 (stunting) per geographical location by age and gender in 2014 *(measurable up to19 years of age)*

	Total		Child of God		Jamii Outreach		JoySpring		Kangaroo		Karantina		Makarios Home		Naiwasha		Nyeri		Remand Home		St Clemens		St George	
	1057		100		46		178		79		51		106		69		99		26		147		154	
	N	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Stunting	132	13%	13	13%	6	13%	9	5%	13	16%	9	26%	32	30%	19	28%	8	8%	10	38%	9	6%	4	3%
No stunting	906	87%	87	87%	39	87%	169	95%	66	84%	25	74%	74	70%	50	72%	91	92%	16	62%	137	94%	150	97%
Unknown	19	2%	0	0%	1	2%	0	0%	0	0%	17	33%	0	0%	0	0%	0	0%	0	0%	1	1%	0	0%
r age																								
<=1 year	4	16%	0	-	0	-	0	0%	3	38%	0	-	0	0%	0	-	0	0%	0	-	1	25%	0	0%
1 & <5 years	23	10%	2	12%	2	8%	2	6%	7	24%	0	-	3	15%	4	24%	0	0%	0	-	3	12%	0	0%
<5 years	27	10%	2	12%	2	8%	2	5%	10	27%	0	-	3	14%	4	24%	0	0%	0	-	4	14%	0	0%
>=5 & <=10	58	9%	10	13%	4	19%	7	5%	3	8%	2	29%	6	18%	13	26%	4	7%	0	-	5	4%	4	5%
>10 years	47	31%	1	14%	0	-	0	-	0	0%	7	26%	23	45%	2	100	4	11%	10	38%	0	0%	0	-
r gender																								
Boy	78	14%	5	9%	0	0%	7	8%	8	21%	5	24%	19	38%	12	32%	5	11%	9	47%	6	7%	2	2%
Girl	54	11%	8	17%	6	26%	2	2%	5	12%	4	31%	13	23%	7	23%	3	6%	1	14%	3	5%	2	3%

Table 10: Prevalence of weight/length at or under P3 (wasting) per geographical location by age and gender in 2014 *(measurable up to 1.20m)*

	Total		Child of God		Jamii Outreach		JoySpring		Kangaroo		Karantina		Makarios Home		Naiwasha		Nyeri		Remand Home		St Clemens		St George	
	1057		100		46		178		79		51		106		69		99		26		147		154	
	N	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Wasting	18	2%	2	2%	1	3%	1	1%	1	1%	1	33%	2	4%	0	0%	2	4%	1	20%	5	3%	1	1%
No wasting	770	98%	98	98%	38	97%	110	99%	76	99%	2	67%	52	96%	46	100 %	53	96%	4	80%	141	97%	149	99%
Unknown	269	25%	0	0%	7	15%	67	38%	2	3%	48	94%	52	49%	23	33%	44	44%	21	81%	1	1%	4	3%
r age																								
<=1 year	1	4%	0	-	0	-	0	0%	0	0%	0	-	0	0%	0	-	0	0%	0	-	0	0%	0	0%
1 & <5 years	4	2%	0	0%	0	0%	0	0%	1	3%	0	-	0	0%	0	0%	0	0%	0	-	2	8%	1	1%
<5 years	5	2%	0	0%	0	0%	0	0%	1	3%	0	-	0	0%	0	0%	0	0%	0	-	2	7%	1	1%
>=5 en <=10	12	2%	2	3%	1	7%	1	1%	0	0%	1	100 %	2	8%	0	0%	2	5%	0	-	3	3%	0	0%
>10 years	1	3%	0	0%	0	-	0	-	0	0%	0	0%	0	0%	0	-	0	0%	1	20%	0	0%	0	-
r gender																								
Boy	9	2%	1	2%	0	0%	0	0%	1	3%	1	33%	1	3%	0	0%	1	4%	0	0%	3	4%	0	0%
Girl	9	2%	1	2%	1	5%	1	2%	0	0%	0	-	1	4%	0	0%	1	3%	1	50%	2	3%	1	1%

During the medical check-ups, we paid again attention to issues of hygiene and nutritional advise. We emphasized on hand-washing, vitamin C, fruit and vegetable intake, so the children may grow healthy and strong. We noticed the policy of mothers to feed their babies up to the age of one year or even more, sourly only with breast milk. 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 organizations, like SFFC, facilitating/paying for school lunches.

2: Anemia:
Anemia 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 anemia, it is important to recognize that the control of anemia requires a multi-faceted approach which, through integrative interventions, addresses the various factors that play a significant role in producing anemia in a given community. 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 anemia and a coexisting H. pylori infection. From the literature it is known that one should suspect an infection with H. pylori when the iron deficiency anemia is refractory to iron administration.

Anemia was diagnosed in 33% of all checked children, which is even higher then the number found in 2013 (26%) or 2012 (24%). The prevalence differs in the different populations. Since the prevalence of anemia is normally higher in children younger than five years of age, partly the difference of anemia is due to age differences in the different groups with more younger children at St George, Kangaroo and Jamii Outreach.

Table 11a: Prevalence of anemia per geographical location by age and gender in 2014

	Total		Child of God		Jamii Outreach		JoySpring		Kangaroo		Karantina		Makarios Home		Naiwasha		Nyeri		Remand Home		St Clemens		St George	
	1057		100		46		178		79		51		106		69		99		26		147		154	
	N	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Anaemia	354	33%	29	29%	11	24%	38	21%	48	61%	18	35%	58	55%	14	20%	45	45%	4	15%	27	18%	61	40%
No anaemia	696	66%	71	71%	34	74%	140	79%	31	39%	31	61%	48	45%	54	78%	54	55%	22	85%	120	82%	90	58%
Unknown	7	1%	0	0%	1	2%	0	0%	0	0%	2	4%	0	0%	1	1%	0	0%	0	0%	0	0%	3	2%
b <5,0 mmol	10	1%	1	1%	0	0%	1	1%	0	0%	1	2%	2	2%	1	1%	0	0%	0	0%	0	0%	4	3%
r age																								
<=1 year	16	64%	0	-	0	-	4	67%	4	50%	0	-	2	100%	0	-	2	67%	0	-	2	50%	1	100 %
en <5 years	98	41%	5	29%	8	33%	7	21%	21	72%	0	-	17	85%	4	24%	0	0%	0	-	7	28%	29	40%
<5 years	114	43%	5	29%	8	33%	11	28%	25	68%	0	-	19	86%	4	24%	2	50%	0	-	9	31%	30	41%
>=5 & <=10	184	30%	24	32%	3	14%	27	19%	22	55%	4	57%	19	58%	10	20%	26	43%	0	-	18	16%	31	39%
>10 years	56	33%	0	0%	0	-	0	-	1	50%	14	32%	20	39%	0	0%	17	49%	4	15%	0	0%	0	-
r gender																								
Boy	188	34%	14	26%	8	35%	22	25%	24	63%	10	36%	29	58%	6	16%	26	55%	3	16%	13	15%	32	39%
Girl	166	33%	15	32%	3	13%	16	18%	24	59%	8	35%	29	52%	8	26%	19	37%	1	14%	14	23%	29	40%

Table 11b: Prevalence of anemia per (selected) geographical location in 2014, 2013, 2012 and 2011

	Total		Jamii Outreach		Joy Springs		Makarios Home		Nai washa		School Nyeri		St Clemens		St George	
2014																
anaemia	354	33%	11	24%	38	21%	58	55%	14	20%	45	45%	27	18%	61	40%
Hb <5,0 mmol	10	1%	0	0%	1	1%	2	2%	1	1%	0	0%	0	0%	4	3%
2013																
anaemia	275	26%	12	25%	21	1%	24	39%	9	13%	43	48%	36	24%	48	22%
Hb <5,0 mmol	10	1%		0		0	2	3%	1	1%	0	-	3	2%	3	1%
2012																
anaemia	251	24%			53	24%	15	23%	16	17%	25	32%	45	32%	19	15%
Hb <5,0 mmol	5	<1%			0		0		1	1%	0		1	1%	3	2%
2011																
anaemia	322	31%			112	3-	22	28%	19	15%	32	27%			68	56%
Hb <5,0 mmol	10	<1%			4	<1%	2	2,5%	2	2,5%	1	<1%			0	

In Makarios Home, Nyeri school and St George, the prevalence has deteriorated since last years (see table 11b). At this locations the food program is sponsored by SFFC and due to the financial crisis world wide which has, unfortunately, impact on the funding of SFFC and therefore on the availability of food.
In 2011 St George school the food program was very effective treating protein-energy malnutrition, but less successful to iron deficient anemia (anemia in 2011 in St George was 56%). We discussed our findings with SFFC, the sponsor of the food program and in 2012 and the program was changed. In 2012 only 15% of the children was anemic (far less than at other locations). Again we had a close evaluation of the food-based strategy, especially dietary diversification, vitamin C containing food and not giving milk together with the food. We suggested to start a home gardening project at Makarios Home to cut down the expenses on vegetables and fruits. Besides this, it is a great opportunity to teach children in a play-full way about nature, food and taking responsibility.

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

In ten children the Haemoglobin level was less than 5.0 mmol/l. In one we diagnosed a Sickle cell crisis and this child was refrred to the Hospital. The Sophia Foundation paid for the clinical treatment.

When it comes to the prevention of anemia, 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.
For babies, we advised exclusive breastfeeding up to six months, then start with the introduction of additional foods.

3: Worm treatment: (prophylactic 65%, 690/1057; therapeutic 31 children, 3%)
In studies Ascaris prevalence percentage in Kenia is around 19% and hookworm 8%. The incidence/prevalence of Taenia Saginata (tape worm) is not known.
A strong relationship exists between a Helminth, an Ascaris Lumbricoides, a Hookworm, a Taenia Trichiura or Saginata (tapeworm) infection and anaemia, growth disturbances and school attendance and results. From studies done world wide, deworming is by far the most cost-effective way to increase school participation with 25%. As a result, the gain in literacy from de-worming is 2.1 years and the gain in income is estimated at 4- just by giving two tablets a year. Overall, the benefits of deworming can be up to 60 times higher than the costs. (estimated costs: $0,15 deworming at schools, $0,25 at community level). A study done in Kenia, with community drug distributers going twice a year from door to door to deliver the anti worm pills in the mouth of the children showed a reduction of anemia with 4% (meaning prevention of anemia in1260 children out of 30.000).

A good initiative is the so-called de-worming day at schools with a good preparation before.

The main points of a deworming day are:

- All children without other illness should be treated during a school deworming day.
- Therefore, it is important to mobilize parents and the community to ensure that children attend school and participate on that day.
- Teachers must inform parents of the importance of deworming so that parental consent to treat their children is obtained before the deworming day.
- The best way to inform parents is to organize a group meeting.
- Remember that the purpose of a school deworming day is to ensure that all school- age children are treated. Therefore tell the children in the school class to bring siblings and friends of school age with them, even if they are not enrolled in school.

Table 12 shows the amount of deworming at the different locations. Most children at St Clemens, St George, Jamii Outeach and Naiwasha got their last deworming pills around six months ago which were left last year by MCC. They are falsely diagnosed as not getting deworming pills-

Table 12a: Frequency of handing out preventive anti-worm treatment and treatment for a suspected acute worm infection

014	Total		Child of God		Jamii Outreach		JoySpring		Kangaroo		Karantina		Makarios Home		Naiwasha		Nyeri		Remand Home		St Clemens		St Georg	
	1057		100		46		178		79		51		106		69		99		26		147		154	
	N	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Anti-worm	366	35%	0	0%	0	0%	162	91%	2	3%	51	100	88	83%	0	0%	43	43%	0	0%	16	11%	3	2%
lo anti-worm	690	65%	100	100	46	100	16	9%	77	97%	0	0%	18	17%	69	100	56	57%	25	96%	131	89%	151	98
er age																								
<=1 year	2	8%	0	-	0	-	0	0%	0	0%	0	-	0	0%	0	-	1	33%	0	-	0	0%	1	100
l en <5 years	53	22%	0	0%	0	0%	29	88%	2	7%	0	-	16	80%	0	0%	1	100	0	-	3	12%	2	3%
<5 years	55	21%	0	0%	0	0%	29	74%	2	5%	0	-	16	73%	0	0%	2	50%	0	-	3	10%	3	4%
>=5 & <=10	216	35%	0	0%	0	0%	133	96%	0	0%	7	100	32	97%	0	0%	30	50%	0	-	13	11%	0	0%
>10 years	95	56%	0	0%	0	-	0	-	0	0%	44	100	40	78%	0	0%	11	31%	0	0%	0	0%	0	-

Table 12b: Frequency of handing out preventive anti-worm treatment and treatment for a suspected acute worm infection On selected locations in 2014, 2013 and 2014.

2014	**Total**		**Jamii Outreach**		**Joy Springs**		**Makarios Home**		**Nai washa**		**School Nyeri**		**St Clemens**		**St George**	
	1057		46		178		106		69		99		147		154	
anti-worm	690	65%	46	10-	16	9%	18	17%	69	10-	56	57%	131	89%	151	98%
acute worm	31	3%	1	2%	3	2%	2	2%	6	9%	0	-	0	-	4	3%
2013	1042		48		128		61		72		90		147		217	
anti-worm	502	48%	42	88%	5	4%	3	5%	71	99%	74	82%	131	89%	61	28%
acute worm	8	1%	0	-	3	2%	0	-	1	1%	0	-	1	1%	2	1%
2012	1032				224		64		95		89		142		125	
anti-worm	429	42%			0	-	0	-	23	24%	1	<1%			124	99%
acute worm	3	-			0	-	0	-	0	-	0	-			2	2%
2011	1064				383		81		123		118				122	
anti-worm	544	51%			13	3%	11	14%	114	93%	98	83%			108	89%
acute worm	16	2%			0	-	0	-	5	4%	0	-			10	8%

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. 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.
Pills for deworming in six months were given to the nurse at Naiwasha and to SFFC for Jamii Outreach, Makarios Home, Nyeri school, St Clemens and St George.

4: Pneumonia: (21, 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 21 children with a severe acute respiratory infection (ARI) were treated with appropriate antimicrobials and home treatment advice.

		Total		**Child of God**		**Jamii Outreac**		**JoySprin gs**		**Kangaroo**		**Karantin a**		**Makarios Home**		**Naiwasha**		**Nyeri**		**Remand Home**		**St Clemens**		**St George**	
		1057		**100**		**46**		**178**		**79**		**51**		**106**		**69**		**99**		**26**		**147**		**154**	
10	pneumonia (clinical)	20	2%	2	2%	0	-	6	3%	1	1%	0	-	3	3%	0	-	2	2%	0	-	5	3%	1	1%
11	pneumonia (X-ray confirmed)	1	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	1	1%	0	-
12	tuberculosis (clinical)	2	-	0	-	0	-	0	-	0	-	0	-	1	1%	0	-	1	1%	0	-	0	-	0	-
13	tuberculosis (X-ray confirmed)	2	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	1	1%	0	-	0	-	1	1%
14	bronchitis	2	-	0	-	0	-	0	-	2	3%	0	-	0	-	0	-	0	-	0	-	0	-	0	-
15	BHR/asthma	3	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	3	2%	0	-

For doctors working in Europe it is amazing how few children have asthma in Kenia. We only saw six children with symptoms of astma/bronchits/BHR. We referred one child to the Riruta clinic for additinal anti-asthma drugs because of the severity of the complains.

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 two months up to 12 months, and 40 breaths per minute or more in a child of 12 months up to five years, lower chest wall indrawing and stridor which is a harsh noise made when the child inhales) for recognition and treatment of pneumonia were transferred to the teachers and caretakers.

5: Cardial problems: (9; 1 %)
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 nine children of having a pathological heart murmur.

		Total		Child of God		Jamii Outreac		Joy Spring		Kangaroo		Karantin a		Makarios Home		Naiwasha		Nyeri		Remand Home		St Clemens		St George	
		1057		100		46		178		79		51		106		69		99		26		147		154	
70	physiological murmer	9	1%	0	-	0	-	1	1%	0	-	1	2%	0	-	1	1%	1	1%	2	8%	1	1%	2	1%
71	pathological murmur (suspected)	9	1%	0	-	0	-	1	1%	0	-	5	1-	0	-	2	3%	0	-	0	-	1	1%	0	-

The children and their care takers with the suspected pathological heart murmurs 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.
Two children, one from Joy Springs and one at Naiwasha needed a referral for further investigation (at Coptic Hospital in Nairobi) which was arranged by SFFC.

6: Skin diseases:
In respect to skin diseases we saw children with dermatomycoses (tinea capitis), eczema, wounds (burns and infectend wounds) but hardly any scabies and lice.
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.

		Total		Child of God		Jamii Outreac		Joy Springs		Kangaroo		Karantin a		Makarios Home		Naiwasha		Nyeri		Remand Home		St Clemens		St George	
		1057		100		46		178		79		51		106		69		99		26		147		154	
50	wounds n.o.s.	1	-	0	-	0	-	0	-	1	1%	0	-	0	-	0	-	0	-	0	-	0	-	0	-
51	eczema n.o.s.	13	1%	0	-	0	-	3	2%	1	1%	0	-	1	1%	0	-	2	2%	0	-	3	2%	3	2%
52	dermatomycosis	42	4%	0	-	3	7%	12	7%	4	5%	2	4%	1	1%	4	6%	3	3%	0	-	10	7%	3	2%
53	Impetigo/furunculosis	8	1%	1	1%	1	2%	0	-	1	1%	0	-	0	-	1	1%	2	2%	1	4%	0	-	1	1%
55	scabies	8	1%	0	-	1	2%	0	-	0	-	0	-	1	1%	0	-	3	3%	2	8%	0	-	1	1%
56	erysipelas / cellulites	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-
57	wounds infected,	18	2%	0	-	0	-	0	-	2	3%	4	8%	1	1%	1	1%	3	3%	0	-	4	3%	3	2%
59	other	39	4%	6	6%	1	2%	1	1%	8	1-	1	2%	7	7%	0	-	4	4%	2	8%	5	3%	4	3%

The subcategorie of dermatomycosis consists mainly of a fungus infection of the head (teania capitis). The last years we invest in education to prevent this condition (no shaving of the head or when shaving: new razor blades per head and desinfection afterwards). Looking at the numbers of dermatomycosis it seems we make a kind of progression in preventing this condition.

	Total		Jamii Outreach		Joy Springs		Makarios Home		Nai washa		School Nyeri		St Clemens		St George	
2014	**1057**		**46**		**178**		**106**		**69**		**99**		**147**		**154**	
dermatomycosis	42	4%	3	7%	12	7%	1	1%	4	6%	3	3%	10	7%	3	2%
2013	**1042**		**48**		**128**		**61**		**72**		**90**		**147**		**217**	
dermatomycosis	84	8%	11	23%	8	6%	1	2%	8	11%	9	1%	20	14%	12	6%

7: Eye problems:

We hardly diagnosed any eye problem. Only five children were diagnosed with a keratoconjunctivitis.
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. We treated children with painful eye's with extra vitamin suppletion and eyedrops.

8: Dental:

In general, a high caries prevalence was found.
This year we were blessed with the presence of a dentist as part of the MCC carrousel.
After the medical check local volunteers gave out toothbrushes and educated the people in teethbrushing.
In Naiwasha, as in former years, a striking higher prevalence of flurosis was found suggesting a contamination of water sources with fluor.

		Total		Child of God		Jamii Outreac		Joy Springs		Kangar oo		Karantina		Makarios Home		Naiwasha		Nyeri		Remand Home		St Clemens		St George	
40	cariës n.o.s.	170	16%	21	21%	3	7%	21	12%	6	8%	12	24%	17	16%	12	17%	22	22%	1	4%	27	18%	27	18%
41	pain n.o.s	7	1%	2	2%	0	-	0	-	0	-	0	-	0	-	2	3%	0	-	1	4%	1	1%	1	1%
42	fluorosis	42	4%	4	4%	1	2%	5	3%	0	-	0	-	8	8%	11	16%	2	2%	0	-	9	6%	2	1%
45	caries with pain	64	6%	3	3%	2	4%	18	1%	2	3%	7	14%	6	6%	2	3%	7	7%	0	-	9	6%	8	5%

	2014	Total		Jamii Outreac		Joy Springs		Makarios Home		Naiwasha		Nyeri		St Clemens		St George	
40	cariës n.o.s.	170	16%	3	7%	21	12%	17	16%	12	17%	22	22%	27	18%	27	18%
41	pain n.o.s	7	1%	0	-	0	-	0	-	2	3%	0	-	1	1%	1	1%
42	fluorosis	42	4%	1	2%	5	3%	8	8%	11	16%	2	2%	9	6%	2	1%
45	caries with pain	64	6%	2	4%	18	1%	6	6%	2	3%	7	7%	9	6%	8	5%
	2013																
40	cariës n.o.s.	125	12%	6	13%	22	17%	10	16%	7	1%	14	16%	25	17%	26	12%
41	pain n.o.s	8	1%	0	-	3	2%	0	-	1	1%	1	1%	1	1%	1	-
42	fluorosis	52	5%	1	2%	4	3%	5	8%	31	43%	2	2%	0	-	0	-
45	caries with pain	20	2%	0	-	4	3%	1	2%	3	4%	2	2%	3	2%	6	3%

9: Stomach ache and other gastrointestinal complaints
During our health checks we encounter a huge amount of (older) schoolchildren with complaints of stomach pain (no exact data available). In the absence of weight loss, bloating or fever these pains could be stress induced. Pressure on adolescents to succeed academically is well known in Nepal, along 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 which has an overall higher incidence in an urban population compared with a rural population.
We also noticed a lot of children who have complains about constipation, leg cramps and headaches (no exact data available). These complaints can be due of the habit of drinking too little. We noticed the normal drinking habit of schoolchildren consists of drinking only one or two cups a day while they need at least a litre a day. We explained the children and their caretakers how and why they should change their drinking habits.

10: Ear-Nose-Throat (ENT)
The prevalence of acute ear infections was comparable with the prevalence in the Netherlands.
Although in the Netherlands treatment of middle ear infections with antibiotics is discouraged, in Africa it still has a big impact in preventing deafness.
Effective initiatives for better hygiene and nutrition will play a part in diminishing chronic ear infections and their complications.

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 anemia and malnutrition, balanced diet, infection, parasites and failure to thrive. We focused on nutritious food and vitamins, as well as hygienic and health promotion issues like the fact that 5- of the under five years of age mortality can be reduced by hand washing with soap due to the reduction of the prevalence of diarrhea and upper airway infection. Hand washing with soap will also reduce severe skin infection.

Future medical needs:
- The children in most of 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.

-To fight the growth abnormalities children need good food with enough (green) vegetables and fruits.
Since these are expensive we suggest SFFC to start a project of Home based agriculture with the children at Makarios Home.

-To improve the quality of the food we suggest to add some lemon at the food because it will help to digest the food in a proper way and to take iron from the food.

-Although we know fat is expensive, we strongly advice suggest to add more fat to the food since our hormones and body cells (especially the nervous and immune system) need fat for good functioning.

-We do not recommend milk and bread as breakfast even for small children especially when they have behavioral/attention problems. We hope alternative snacks for example made of sweet potato can be served as breakfast.

-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.

-We strongly advice to start school programs to promote the drinking of water.

-Attention to birth control should be at any place where boys and girls live together and especially when the are above the age of twelve. We advised at the Karantina Home for disabled children to discuss this subject with the parents and make a priority in putting the girls on contraceptives.

- 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.

- There is a need to find a method for keeping relevant medical information with the child (like the need of antibiotics before dental extraction in children with a cardial septal defect).

-Children at school should be save. Therefore it is important to find ways to prevent any hitting or whats so ever at schools.

Last words:
Once Africa gets into your heart she will never let you go.
It has been a memorable mission in the lives of all team members.
We will not forget Cliff, not happily running around in the slums of Kibera anymore, but in the beautiful new Makarios children home in Nyeri. We will not forget Caleb, who was in formal years making everyone crazy with his attention deficit now much better after he quits eating bread and milk. Nor will we forget Susan from Nawaisha after her heart operation in 2009 sponsored by the Emile Nieuwendijk Foundation she is a vived beautiful girl who clings at our side from the minute we arive.
Of course we will not forget Rachel, with Aids stage III who was given away in 2013 to the Makarios Home by her grand mother without shedding a tear nor the baby boy twins with their brave mother.
The children of the Remand home: we took them in our hearts and hope SFFC can do something to ease their circumstances.

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Special thanks also go to the local translators, teachers and helpers. We enjoyed working together and 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 child health and hygiene. The fact we can work now together with adults who were children whom we have checked in former years is a well of inspiration beyond words for the work all people involved in the projects of SFFC and MCC.
We are grateful to all the care takers, teachers 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.
Again, we were impressed by the work the Sofia Foundation did at Makarios Home and inspired how people from different backgrounds and with different goals in life can form a close unit when the common goal is to help children.
We both are very happy the board of Medical Checks for Children decided to continue the co-operation and we both hope we can be part of this team next year.

Amsterdam, 23 July 2014
Anne Vlietstra, organization-end-responsible MCC mission Nairobi, Kenia 2014
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