

A Multi-Level Approach to Addressing Oral Health Needs in Kitui, Kenya

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Background: Nyumbani Village

Nyumbani Village is a rural community that serves 1000 children and 100 older adults affected by HIV/AIDS

- Located in rural Kitui County, Kenya
 - Children of God Relief Fund, Inc.¹
- Mission: Provide holistic care²
 - Education, medical care, shelter, psychosocial support, nutrition
 - Foster families: 10 children to one older adult caregiver ("grandparent")
 - Arranged in clusters of four (n=25) centered around a water source
 - Social interactions and community



Nyumbani Village

- Schools (n=3)
 - Primary (elementary school); Secondary (high school); Vocational (trade school)
 - Serve breakfast and lunch at school (dinner and Sunday meals at home)
- Medical Clinic
 - Clinical officer (n=1) and Nurse (n=1)
- Social work service
 - Social workers (n = 8) assigned to clusters (1 social worker to 3 clusters)
- On-Site Canteen Shop
- Farms, greenhouses, animal husbandry

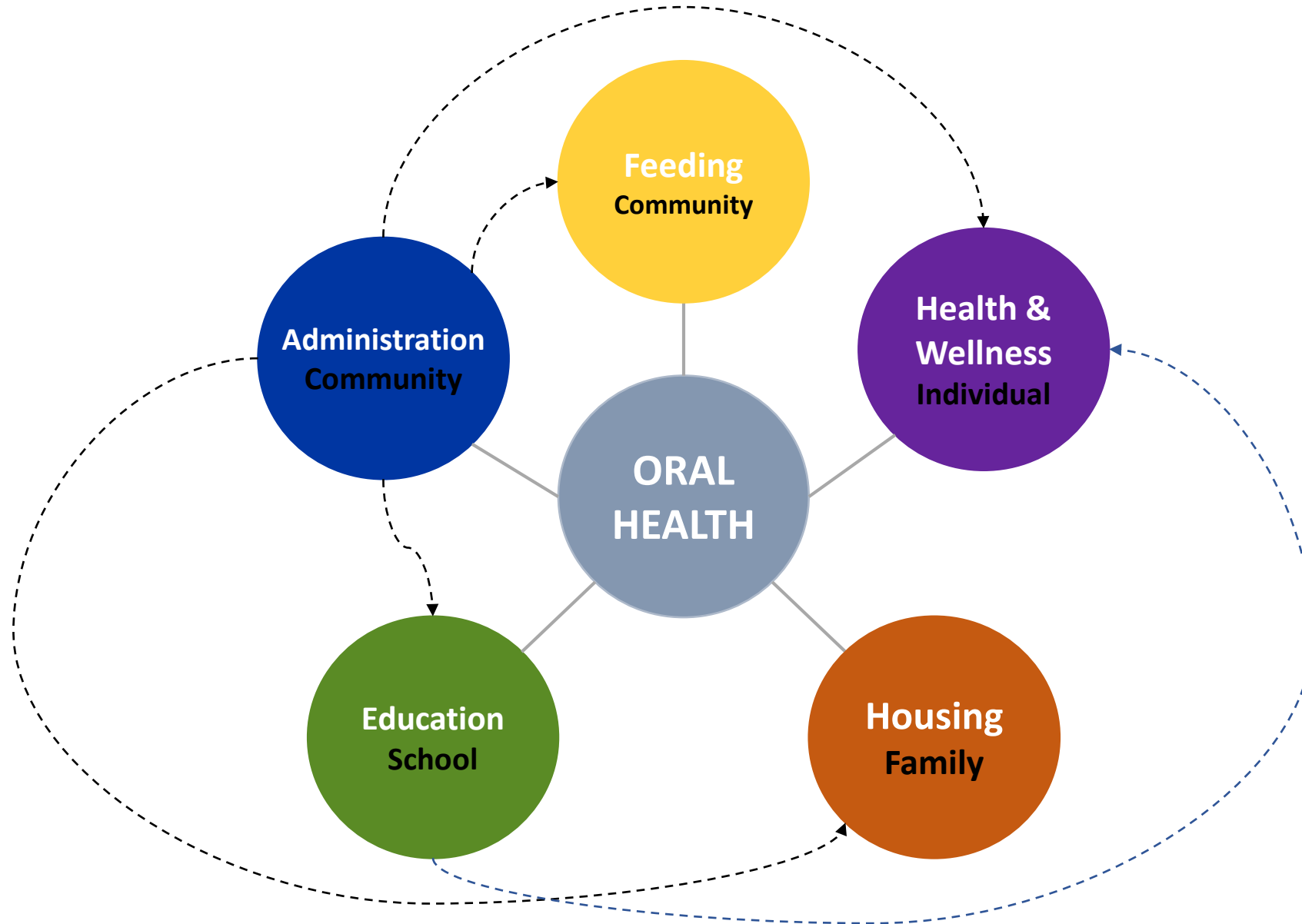
No previous oral health needs assessment

Objectives

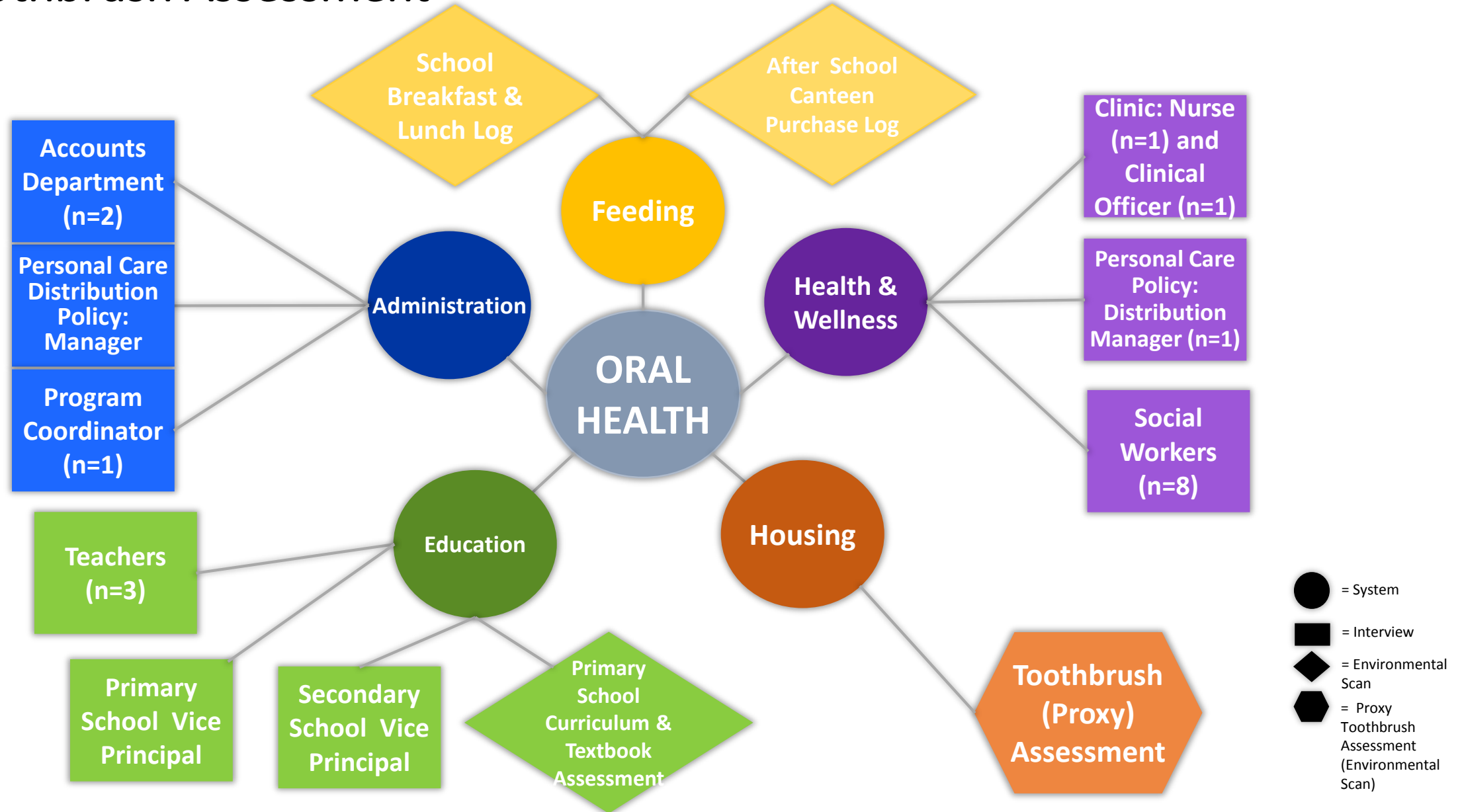
Use participatory research methods to:

1. Assess oral health needs, gaps in oral health services, and
2. To determine how best to address oral health within the existing infrastructure

Systems Affecting Oral Health and HealthCare



Methods: Environmental Scans, Key Informant Interviews, Toothbrush Assessment



Methods: Environmental Scans & Key Informant Interviews

SYSTEM	TARGET	APPROACH
Feeding	<ol style="list-style-type: none"> 1. Nyumbani Schools 2. On-Site Canteen Shop 	<ul style="list-style-type: none"> • Environmental Scan <ul style="list-style-type: none"> • School Breakfast and Lunch Menu Log • After-School Canteen Purchasing Habits Log
Health & Wellness	<ol style="list-style-type: none"> 1. Clinic 2. Personal Care Distribution 	<ul style="list-style-type: none"> • Key Informant Interviews <ul style="list-style-type: none"> • Clinical Officer • Nurse • Distribution Manager • Teachers (n=3)
Housing	<ol style="list-style-type: none"> 1. Nyumbani Family Homes 	<ul style="list-style-type: none"> • Toothbrush Assessment
Education	<ol style="list-style-type: none"> 1. Primary School 2. Traditional Secondary School 	<ul style="list-style-type: none"> • Key Informant Interviews <ul style="list-style-type: none"> • Primary School Vice Principal • Traditional Secondary School Vice Principal • Environmental Scan <ul style="list-style-type: none"> • Assessment of Primary School curriculum and textbook • Social Workers (n=8)
Administration	<ol style="list-style-type: none"> 1. Program Coordinator (n=1) 2. Accounts Department (n=2) 	<ul style="list-style-type: none"> • Key Informant Interviews <ul style="list-style-type: none"> • Program Coordinator • Accounts Department

Findings: Feeding

School meals have little-to-no added sugar

		Monday	Tuesday	Wednesday	Thursday	Friday
WEEK 1 (27 June 2016)	Hotcourses					
	Breakfast	Uji w/ milk	Uji w/ milk	Uji w/ milk	Uji w/ milk	Uji w/ milk
	Breakfast*	Uji w/ milk	Uji w/ milk	Uji w/ milk	Uji w/ milk	Uji w/ milk
	Lunch	Githeri/beans	Muthokoi	Rice/ greengrams	Muthokoi	Githeri
	Lunch*	Not specified	Not specified	Not specified	Not specified	Not specified
	Lawson					
	Breakfast	NO SCHOOL	NO SCHOOL	Uji	Uji	Uji
	Breakfast*					
	Lunch			Rice/beans	Githeri	Githeri
	Lunch*			Rice/beans/ sukuma	Greengrams/ muthokoi	Githeri
	Polytechnic					
	Breakfast	Uji	Uji	Uji	Uji	Uji
	Breakfast*	Uji	Uji	Uji	Uji	Uji
	Lunch	Githeri	Githeri	Githeri	Githeri	Rice/beans
	Lunch*	Rice/potato/tomato	Rice/potato/tomato	Rice/potato/tomato	Rice/potato/tomato	Rice/potato/tomato
WEEK 2 (12 July 2016)	Hotcourses					
	Breakfast	Uji w/ milk	Uji w/ milk	Uji w/ milk	Uji w/ milk	Uji w/ milk
	Breakfast*	Uji w/ milk	Uji w/ milk	Uji w/ milk	Uji w/ milk	Uji w/ milk
	Lunch	Muthokoi	Githeri	Rice/beans	Githeri	Githeri
	Lunch*	Rice/greengrams	Rice/sukuma	Rice/beans	Muthokoi/sukuma	Muthokoi
	Lawson					
	Breakfast	Uji	Uji	Uji	Uji	Uji
	Breakfast*	Uji	Uji	Uji	Uji	Uji
	Lunch	Muthokoi	Githeri	Rice/beans	Githeri	Muthokoi
	Lunch*	Muthokoi	Muthokoi	Rice/beans	Muthokoi/ greengrams	Muthokoi/ spinach

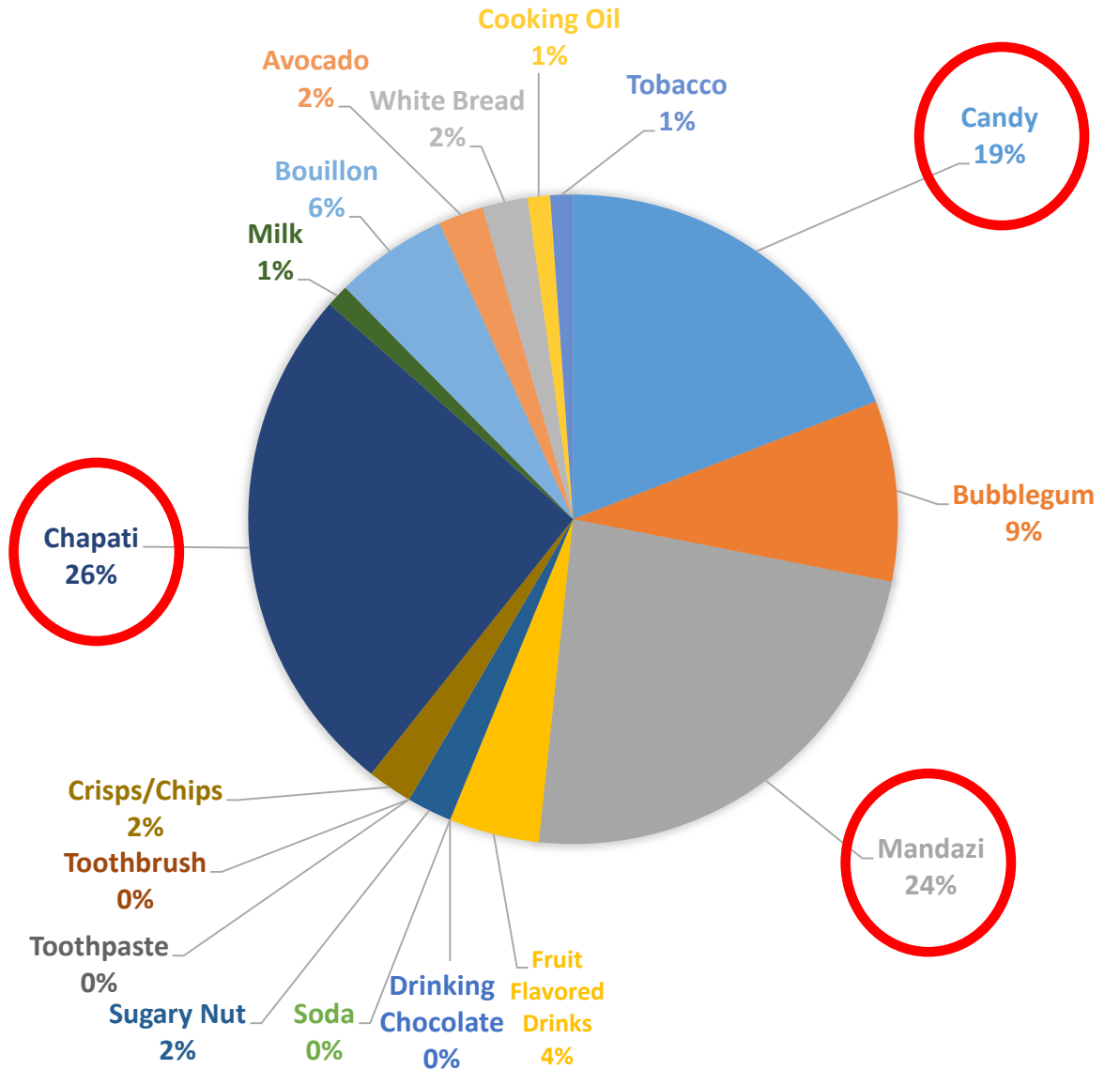
SCHOOLS:
Hotcourses: Primary
Lawson: Traditional Secondary
Polytechnic: Vocational Secondary

FOOD ITEMS:
Uji: Porridge
Githeri: Maize & Beans
Muthokoi: Maize & Beans
Sukuma: Swiss Chard, Kale, Spinach
Greengrams: Lentils

Findings: Feeding

After-School Purchasing Habits at Canteen

- Combined 3 day log of student purchases
 - N = 69 students observed
- **Top Purchases:** Chapatis, Mandazi, Candy



Findings: Health and Wellness

Dental Disease Burden

- 3-7 children per week present to the clinic with dental symptoms; 2 referred to Hospital
 - Visual examinations: Frank caries/infections
 - Poor knowledge
 - Lack of supplies
 - Palliative care
 - Referrals to Kitui Hospital
 - Repeat issues; visible dental infections and on antibiotics
 - Primarily extractions; restorative/endodontics costly

Month	# of Patients Referred
April 2016	6
May 2016	8
June 2016	11

Monthly Patient referrals made to
Kitui Hospital for Dental Needs

Findings: Health and Wellness/Administration

Personal-care product procurement and distribution policy

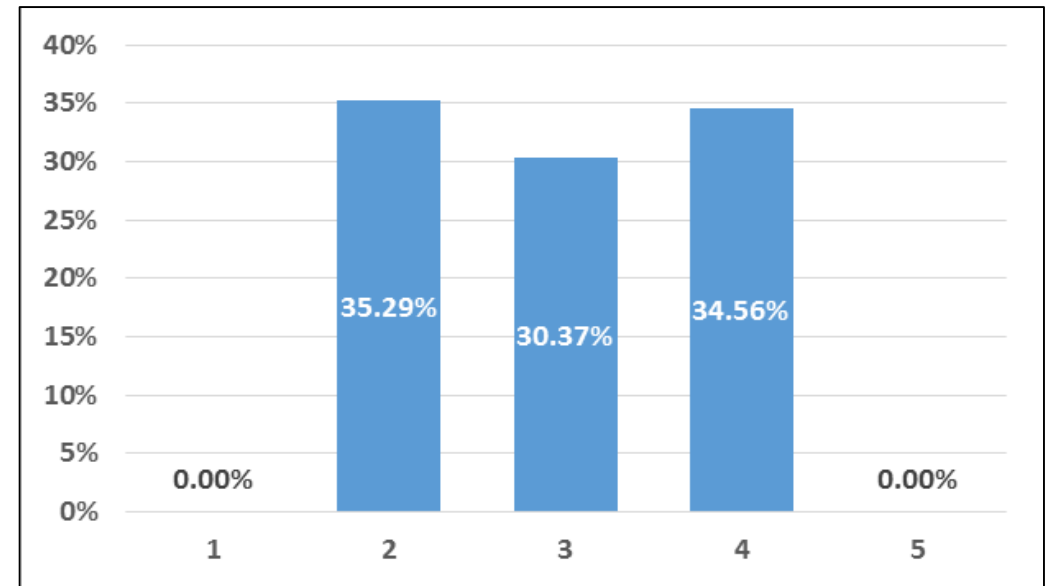
- Body soap, petroleum jelly, toilet paper, laundry detergent
- *No system for procurement or distribution of oral care aides (OCAs)*
 - Reliance on donations of OCAs (0-2 times per year)



Findings: Housing

Toothbrush Assessment

- Sample: 31 family homes
 - Total of 329 possible study participants
 - **N = 266 study participants**
 - Response Rate = 80.8%
- **51.3%** of those seen had toothbrushes (n=136)
 - Not all had toothbrushes, even in the same home
- Of toothbrushes seen, **35%** were of good quality and functional (n=47)



Toothbrush Assessment – Percentages of Toothbrushes by Ratings (n=136)

Rating	Definition
1	New and unused
2	Used but functional
3	Somewhat functional (replacement recommended)
4	Very worn but used in mouth (replacement needed)
5	Dirty; Used for other purposes (replacement needed)

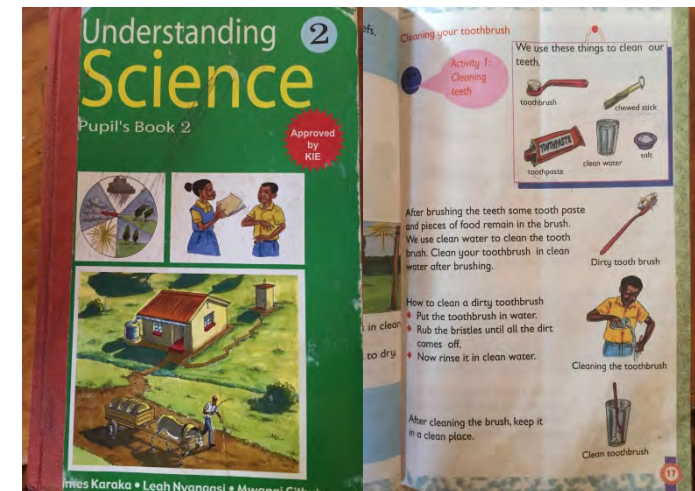
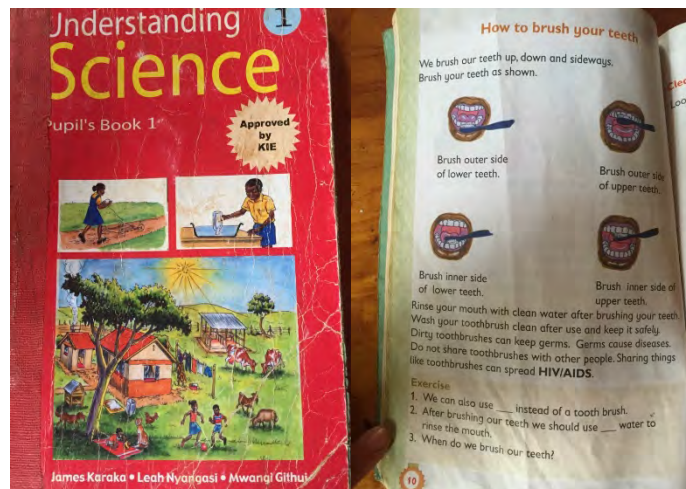
Five-Point Rating Scale used to assess Toothbrush Quality



Findings: Education

- **Primary School**

- Grade 1 and 2 textbooks revealed that 1 textbook (*Understanding Science*) minimally discussed oral health
 - Oral health information insufficient and missing pertinent information



Findings: Education

- **Secondary School**

- There is a robust student organization club system present
- However, there are no student clubs that have a health focus

Findings: Administration

- Accounts Department:
 - No OCA budget
- Program Coordinator:
 - Dental referral data log
 - Key Figure for future planning

Outcomes: Health & Wellness

Dental Disease Burden

- Dental Disease Burden and Dental Referral data was presented to Nyumbani Administration
- This information was used to support the need and importance of preventative oral health care
- Encouraged administrative buy-in once they saw the true cost of poor oral health

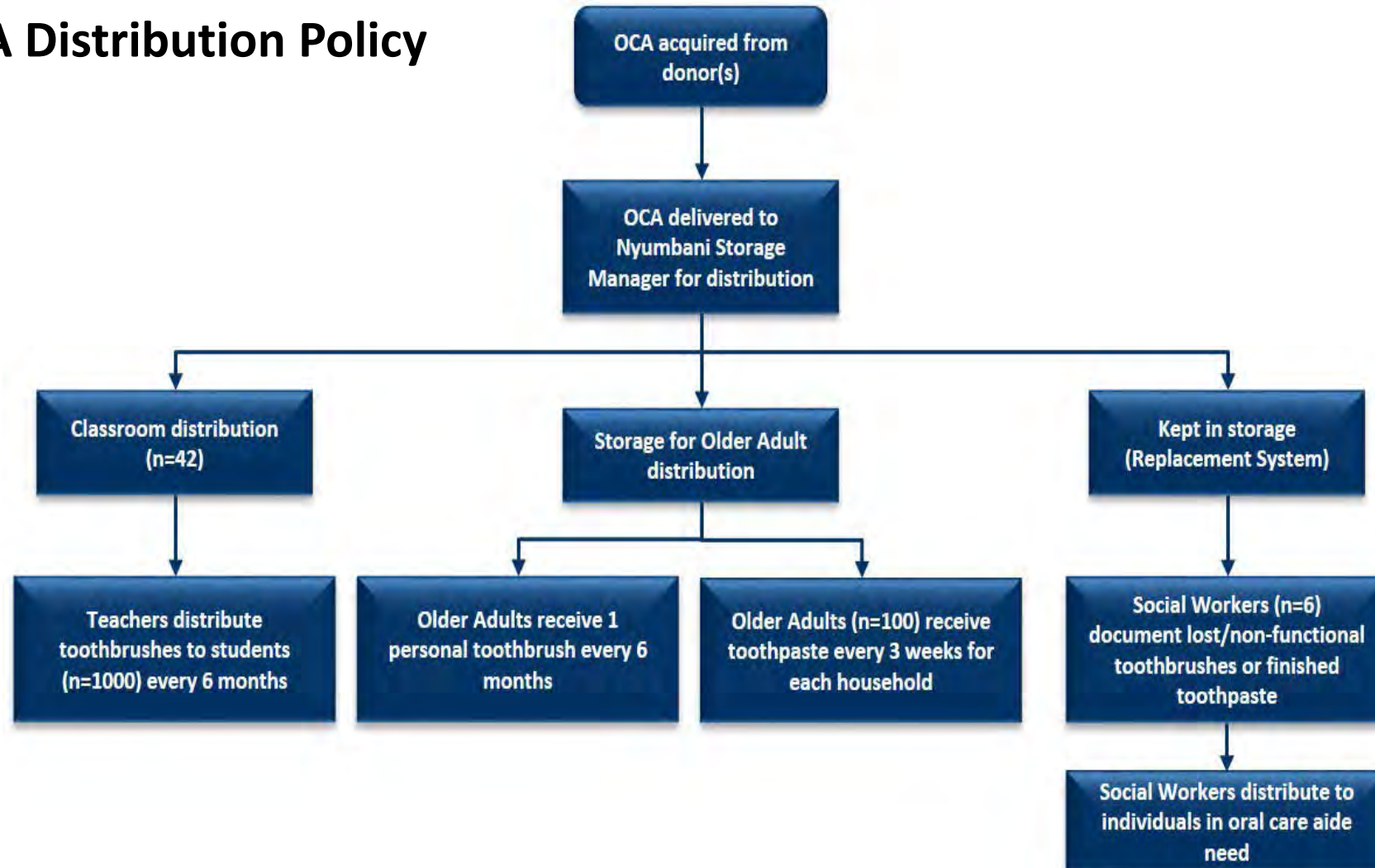
Outcomes: Health & Wellness

Personal-care product procurement and distribution policy

- A link was established between Nyumbani Village and an external donor
 - Secured a quarterly 4500 item OCA donation
- A novel OCA distribution policy was developed
 - Partnered and worked with staff and administration (distribution manager, program manager, social workers)
 - Integrated into existing personal care distribution system
 - Efficiency, effectiveness, sustainability, reach

Outcomes: Health & Wellness

New OCA Distribution Policy



Outcomes: Feeding

- Nutritional information (gained from the school menus and canteen studies) informed discussion of diet in oral health education delivered to school children, grandparents, teachers and administration
 - Discussion of cariogenic potential of foods such as mandazis, chapatis, and sweets
 - Enhanced relevance by inclusion of local foods

Outcomes: Education

- **Primary School:** Expansion of oral health component in texts
 - Oral health information sheet created and given to Grades 1 and 2 teachers
 - Focus: Importance of brushing, instruction on brushing, proper cleaning and storage
 - Vice Principal requested that a basic sanitation component be included
 - Hand-washing, drinking clean water
 - Thorough discussion with Grade 1 and 2 teachers about information sheet

Outcomes: Education

- Peer-to-peer education model
- Peer education effective when applied to oral health³
- Established Health Club (Secondary School)
 - Train-the-trainer model: “Dental Ambassadors” trained to be oral health peer educators (oral health promotion/disease prevention strategies)
 - Relevant to local condition (toothbrush distribution system; diet, local products)
 - Didactic and experiential
 - All four grades recruited (n=50); overseen by teacher who was also trained in oral health promotion/disease prevention strategies
- Although the training was targeted at after school clubs we expect dissemination at the family and community level due to cluster organization

Outcomes: Education



Oral Health Education with Dental Ambassadors



Oral Health Education with grandparents

Conclusions

Level Targeted	Program Implemented
Individual	<ul style="list-style-type: none">• Peer-Education Based Health Club• OHI Sessions
Family	<ul style="list-style-type: none">• Peer-Education Based Health Club• OCA Distribution Policy
School	<ul style="list-style-type: none">• Primary School Curriculum Expansion• Peer-Education Based Health Club• OHI Sessions
Community	<ul style="list-style-type: none">• OCA Distribution Policy• OHI Sessions

Conclusions

- It is important to reinforce that oral health is a *necessity* and not a *luxury*
- This work highlights simple but effective multi-level strategies to assess needs and promote oral health in resource poor areas.
 - Much of the work performed here could be replicated in other resource-poor environments
 - Toothbrush as a proxy measure for oral health
- Community partnership is vital to implementation and sustainability.
 - Administration began to suggest methods to expand oral health education
 - Began to examine expenses associated with oral health care and referrals both at the Village and other programs in Nairobi
 - One year later, administration is applying for oral health grant from a foundation; technical assistance provided by Columbia University College of Dental Medicine

Thank you!

Questions?

References

1. Nyumbani Village. (2017). Governance. Retrieved from Governance | Nyumbani Village: <http://www.nyumbani.org/governance/>
2. Nyumbani Village. (2016). Nyumbani Village. Retrieved from Nyumbani Village: <http://www.nyumbani.org/nyumbani-village/>
3. Haleem, A., Siddiqui, M. I., & Khan, A. A. (2012, December 18). School-based strategies for oral health education of adolescents- a cluster randomized controlled trial. BMC Oral Health 2012, 12(54). doi:10.1186/1472-6831-12-54