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

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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

- Feeding Community
- Health & Wellness Individual
- Administration Community
- Education School
- Housing Family

ORAL HEALTH
Methods: Environmental Scans, Key Informant Interviews, Toothbrush Assessment

ORAL HEALTH

Feeding

- School Breakfast & Lunch Log
- After School Canteen Purchase Log

Administration

- Accounts Department (n=2)
- Personal Care Distribution Policy: Manager (n=1)
- Program Coordinator (n=1)

Education

- Teachers (n=3)
- Primary School Vice Principal
- Secondary School Vice Principal

Health & Wellness

- Personal Care Policy: Distribution Manager (n=1)
- Social Workers (n=8)

Housing

- Clinic: Nurse (n=1) and Clinical Officer (n=1)

Toothbrush (Proxy) Assessment

- Program Coordinator (n=1)
- Accounts Department (n=2)
- Personal Care Distribution Policy: Manager (n=1)
- Social Workers (n=8)

Primary School Curriculum & Textbook Assessment

School Breakfast & Lunch Log

After School Canteen Purchase Log

Accounts Department (n=2)

Personal Care Distribution Policy: Manager (n=1)

Program Coordinator (n=1)

Teachers (n=3)

Primary School Vice Principal

Secondary School Vice Principal

Primary School Curriculum & Textbook Assessment

Clinic: Nurse (n=1) and Clinical Officer (n=1)

Personal Care Policy: Distribution Manager (n=1)

Social Workers (n=8)

TOOTHBRUSH ASSESSMENT

- Environmental Scan
- Interview
- Proxy
- Toothbrush Assessment (Environmental Scan)
<table>
<thead>
<tr>
<th>SYSTEM</th>
<th>TARGET</th>
<th>APPROACH</th>
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</table>
| Feeding         | 1. Nyumbani Schools  
  2. On-Site Canteen Shop | • Environmental Scan  
  • School Breakfast and Lunch Menu Log  
  • After-School Canteen Purchasing Habits Log |
| Health & Wellness | 1. Clinic  
  2. Personal Care Distribution | • Key Informant Interviews  
  • Clinical Officer  
  • Nurse  
  • Distribution Manager  
  • Teachers (n=3) |
| Housing         | 1. Nyumbani Family Homes                   | • Toothbrush Assessment                       |
| Education       | 1. Primary School  
  2. Traditional Secondary School | • Key Informant Interviews  
  • Primary School Vice Principal  
  • Traditional Secondary School Vice Principal  
  • Environmental Scan  
  • Assessment of Primary School curriculum and textbook  
  • Social Workers (n=8) |
| Administration  | 1. Program Coordinator (n=1)  
  2. Accounts Department (n=2) | • Key Informant Interviews  
  • Program Coordinator  
  • Accounts Department |
Findings: Feeding
School meals have little-to-no added sugar

<table>
<thead>
<tr>
<th>SCHOOLS:</th>
<th>Hotcourses: Primary</th>
<th>Lawson: Traditional Secondary</th>
<th>Polytechnic: Vocational Secondary</th>
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<tbody>
<tr>
<td></td>
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<td>Sukuma: Swiss Chard, Kale, Spinach</td>
<td>Greengrams: Lentils</td>
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<table>
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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

<table>
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<th>Month</th>
<th># of Patients Referred</th>
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<td>June 2016</td>
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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)

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<thead>
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<th>Rating</th>
<th>Definition</th>
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<tbody>
<tr>
<td>1</td>
<td>New and unused</td>
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<tr>
<td>2</td>
<td>Used but functional</td>
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<tr>
<td>3</td>
<td>Somewhat functional (replacement recommended)</td>
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<tr>
<td>4</td>
<td>Very worn but used in mouth (replacement needed)</td>
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<tr>
<td>5</td>
<td>Dirty; Used for other purposes (replacement needed)</td>
</tr>
</tbody>
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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

OCA acquired from donor(s) → OCA delivered to Nyumbani Storage Manager for distribution

- Classroom distribution (n=42)
  - Teachers distribute toothbrushes to students (n=1000) every 6 months
- Storage for Older Adult distribution
  - Older Adults receive 1 personal toothbrush every 6 months
  - Older Adults (n=100) receive toothpaste every 3 weeks for each household
- Kept in storage (Replacement System)
  - Social Workers (n=5) document lost/non-functional toothbrushes or finished toothpaste
  - Social Workers distribute to individuals in oral care aide need
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 health
• 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

<table>
<thead>
<tr>
<th>Level Targeted</th>
<th>Program Implemented</th>
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<tbody>
<tr>
<td>Individual</td>
<td>• Peer-Education Based Health Club</td>
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<td></td>
<td>• OHI Sessions</td>
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<tr>
<td>Family</td>
<td>• Peer-Education Based Health Club</td>
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<td></td>
<td>• OCA Distribution Policy</td>
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<tr>
<td>School</td>
<td>• Primary School Curriculum Expansion</td>
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<tr>
<td>Community</td>
<td>• OCA Distribution Policy</td>
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<td></td>
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</table>
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

