syncd

synergistic solutions for
noncommunicable diseases

TEAM 9

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CHALLENGES

CHALLENGE 1
Lwala's current model does not address noncommunicable diseases in a systematic manner

CHALLENGE 2
eHealth is fragmented and incomprehensive for the end user

CHALLENGE 3
Lwala's model is limited to the catchment area in Migori County

LEVERAGE

Leverage Lwala's current infrastructure to support NCD prevention and treatment by training of trainers.

STRENGTHEN

In 3 years, strengthen the infrastructure through the advent of an expanded EMR platform and end user application.

GROW

Partner with the MOH and COC to create policy memo on regulation of cigarettes and alcohol.

GOALS & OBJECTIVES

LEVERAGE
THROUGH PEER REPLICATION

Leverage the current healthcare structure of Lwala to improve NCD prevention and treatment by:

- Training of trainers to enhance CHW understanding of NCDs
- Expanding screening and vaccination protocols for cervical and breast cancer
- Expanding nutrition counseling
- Developing NCD screening protocol specific to HIV patients

Physical Activity	Nutrition	HIV

CVD/Stroke	Diabetes	Hypertension	Cervical Cancer	Breast Cancer
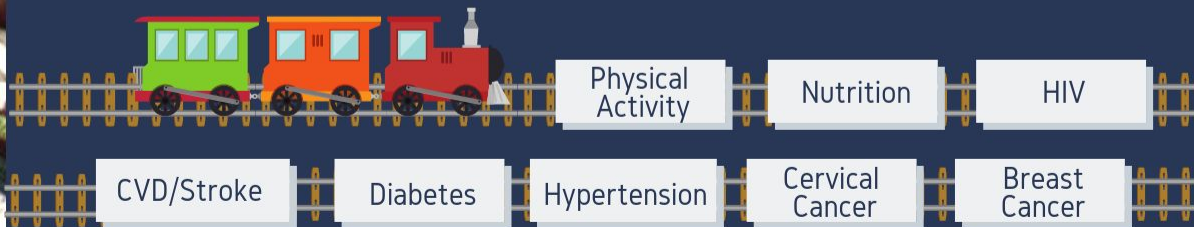
STRENGTHEN
THROUGH DIRECT SERVICE EXPANSION

Strengthening infrastructure with the advent of eHealth by:

- Expanding KenyaEMR and CommCare to include NCDs and provide clinical decision support to Community Health Workers
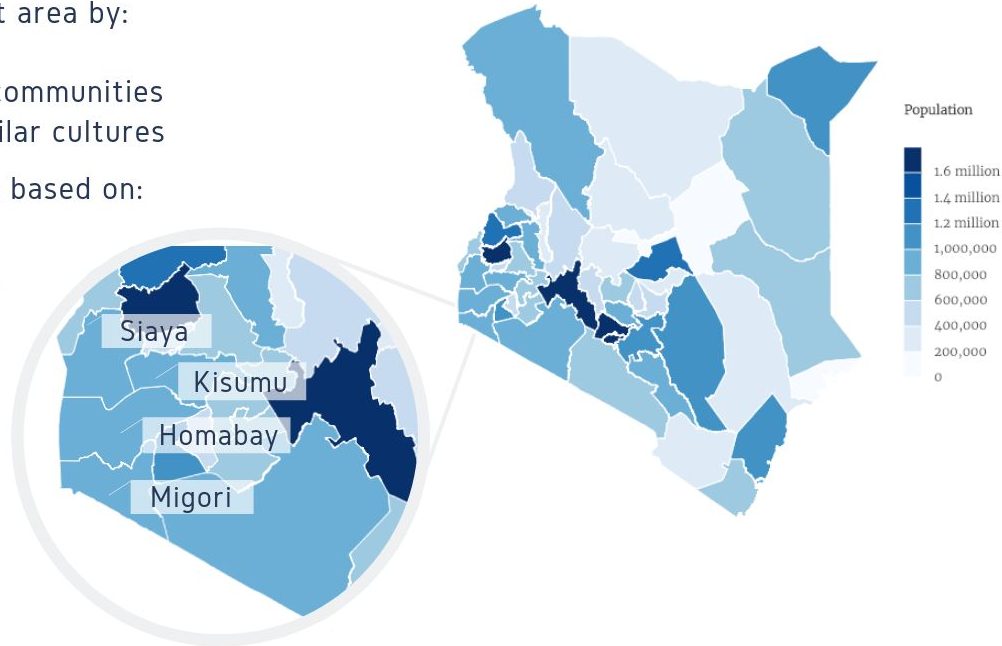- Holding a "Codeathon" to engage the community

CODEATHON
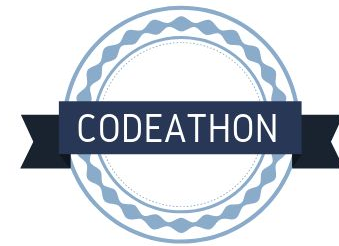
GROW
THROUGH GOVERNMENT ADOPTION

Growing out of the catchment area by:
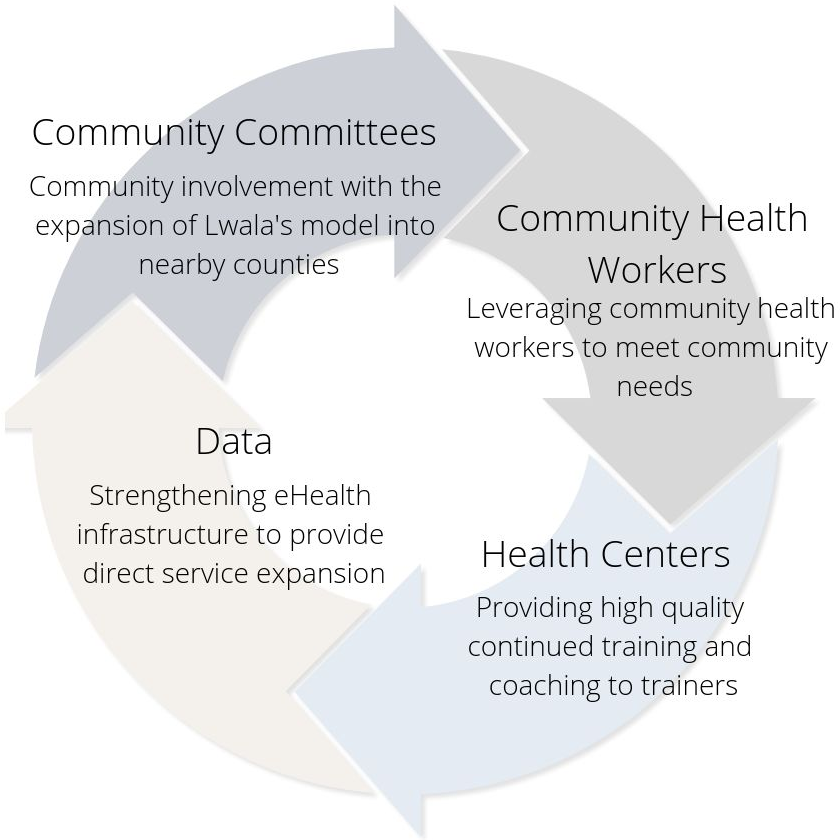- Policy memo
- Connecting with other communities
- Training CHWs with similar cultures

Four tiers of Kenyan counties based on:
- Population density
- Healthcare Infrastructure
- HIV prevalence
- Urbanization
- Poverty prevalence
- Rate of growth

Population

- 1.6 million
- 1.4 million
- 1.2 million
- 1,000,000
- 800,000
- 600,000
- 400,000
- 200,000
- 0

Siaya

Kisumu

Homabay

Migori

Community Committees
Community involvement with the expansion of Lwala's model into nearby counties

Community Health Workers
Leveraging community health workers to meet community needs

Data
Strengthening eHealth infrastructure to provide direct service expansion

Health Centers
Providing high quality continued training and coaching to trainers

COMMUNITY LED HEALTH MODEL

WITH A TWIST

We've integrated our objectives in Lwala's current Community Led Health Model.

SWOT ANALYSIS

STRENGTHS

- Leverages Lwala's successful model of using CHWs to reach rural populations
- **Incorporates with HAWI** to address increased NCD burden in PLWHIV
- Maximizes resources through **task shifting**
- Prioritizes **capacity building** through training of trainers
- Focuses on the NCDs causing the most morbidity and mortality in Kenya

WEAKNESSES

- Increases burden on CHWs through increased training and tasks
- Risk of pulling organizational focus away from maternal-child health and infectious disease
- Increased screening will increase the need for more expensive follow-up diagnostic tests
- Increased diagnosis of NCDs may overwhelm Lwala Community Hospital

OPPORTUNITIES

- Expands Lwala's current use of technology through new partnerships to **empower CHWs and patients**
- Potential to expand model throughout Kenya
- Possible academic **partnerships** to research intervention efficacy

THREATS

- Funding possibly unsustainable following 3 year grant
- Success of advocacy for prevention measures dependent on Kenyan government
- Expansion heavily dependent on Ministry of Health cooperation
- Lwala model may not fit other regions of Kenya

PROPOSED IMPACT & SUSTAINABILITY

EDUCATION

Training of trainers and community health worker decision support

ECONOMICS

Chamber of Commerce and Ministry of Health regulatory policies on cigarettes and alcohol

CULTURE

PDSA model in order to tailor healthcare delivery to individual facilities

COMMUNITY COMMITTEES, HEALTH WORKERS, AND LWALA CLINICAL MENTORS WORK TOGETHER TO IMPLEMENT A CYCLE OF CONTINUOUS IMPROVEMENT

FACILITY ASSESSMENT

DEFINE PRIORITY GAP

MAKE IMPROVEMENT PLAN

IMPLEMENT PLAN

REVIEW OUTCOMES

ADJUST OR DOCUMENT PLAN

CONTINUE IMPLEMENTAION
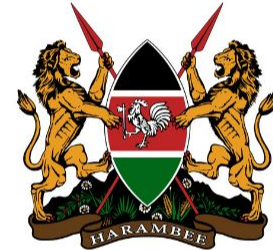
POLITICS

Engaging with the Ministry of Health and local municipalities

YEAR 1

Training of trainers on prevention and treatment of NCDs

Addition of NCD training material for Community Health Workers

Supporting current eHealth efforts and holding the 'codeathon'

YEAR 2

Stakeholder involvement in advent of eHealth

implementation of user end eHealth application

YEAR 3

Connecting with and planning to expand to other catchment areas

Policy memo on the regulation of cigarettes and alcohol

PROPOSED
TIMELINE
& BUDGET

Discretionary
10.9%

Application Development
13.7%

Training
31.8%

Codeathon
18%

Hypertension Treatment
4.1%

Diabetes Treatment
21.5%
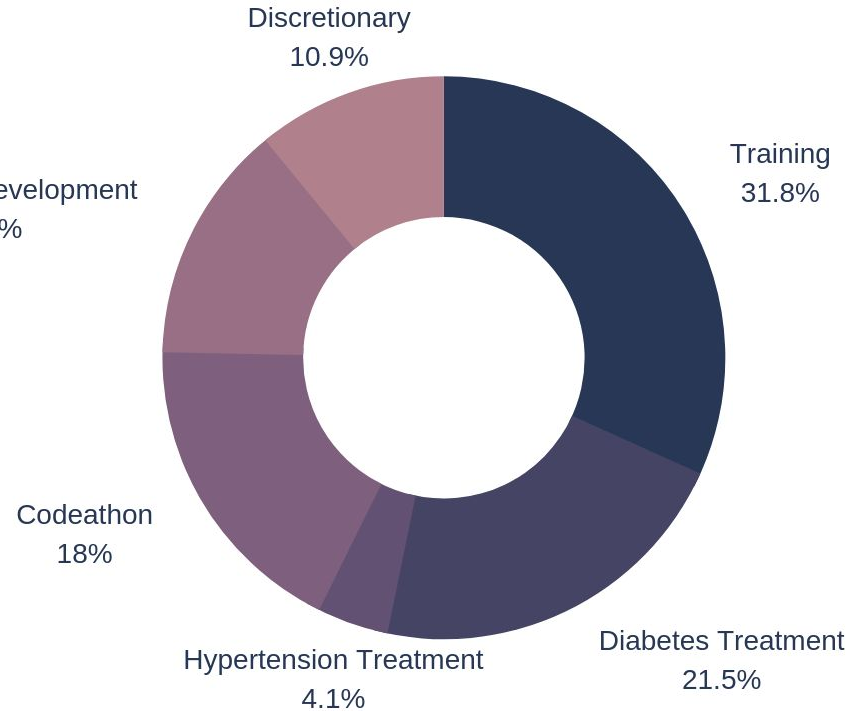
APPENDIX

APPENDIX A: LEVERAGE LOGIC MODEL

Goal: Leverage the current healthcare infrastructure of Lwala to improve NCD prevention and treatment.
NCD: CVD, CVA, HTN, diabetes, cervical cancer, breast cancer
Risk factors: Nutrition, physical activity, HIV

Inputs	Outputs		Outcomes		
	Activities	Participation	Short term	Mid term	Long term
Training and training materials Medical supplies: glucometers and blood pressure cuffs Mobile EMR CommCare and mUzima	Training Lwala's Community Health Workers to shift towards NCD prevention through **screening** with BP monitoring and blood glucose testing. Training Lwala's Community Health Workers in the basic **treatment** of HTN and DM for high-risk patients. Development of NCD screening protocol for HIV patients that can be implemented through HAWI.	Lwala Ministry of Health Community Health Workers Migori catchment area Community members Ministry of Education	Training of 15 trainers (5 per activity) NCD screening protocol for HAWI developed and tested through initial QI cycle	50% of CHWs are trained on screening methods 50% of CHWs are trained on basic treatment of HTN and DM 50% of current HAWI trainers trained on new NCD screening potocol	All CHWs able to deliver NCD screening. Full integration of basic DM and HTN education in training new CHWs. 50% of adults in catchment area screened for BP and diabetes
Training and training materials	Expansion of Lwala's child nutrition program to educate women on overnutrition and PA.		Training of 5 trainers	50% of CHWs trained on overnutrition and PA education	The full incorporation of overnutrition and physical activity in nutrition education for mothers.
Training and training materials Medical supplies: VIA materials	Expansion of child wellness appointments to start screening mothers for cervical cancer (VIA) and breast cancer (CBE).		Training of 5 trainers Increased community awareness of cervical cancer and breast cancer screening	30% of Lwala mothers up to date on VIA screening 30% of Lwala mothers up to date on CBE	70% of Lwala mothers up to date on VIA screening 70% of Lwala mothers up to date on CBE
Training and training materials HPV Vaccine (through MOH and GAVI partnership)	Incorporate 2019 MOH plan for HPV vaccination of girls age 10-14 through Lwala's school health club program		HPV vaccine offered through all 10 schools with Lwala health clubs	>50% uptake of HPV vaccine by girls age 10-14 in schools with Lwala health clubs	>95% uptake of HPV vaccine by girls age 10-14 in schools with Lwala health clubs

APPENDIX B: STRENGTHEN LOGIC MODEL

Goal: Strengthen health systems infrastructure with the advent of eHealth (or teleHealth).

| Inputs	Outputs		Outcomes		
	Activities	Participation	Short term	Mid term	Long term
Marketing material Facility space Seed money	Partnership with IBM, SafariCom, and MOH to create a patient centered application that allows control over personal information, reminders for appointments and screening (cervical cancer), fluidity between hospitals supported by MOH, patient satisfaction surveys, and compatibility with KenyaEMR/CommCare/mUzima through a competitve 'codeathon' with third party developers.	Ministry of Health Lwala and other healthcare facilities Safaricom Third party developers IBM Partnership Vanderbilt University Community members	$100K seed money to the developers and a contract for one year with MOH, Safaricom, Lwala, and specilialist from IBM.	Increased partnership between private, public, and governental sectors. Comprehensive eHealth application developed Public awareness and use of eHealth application by 25% of Lwala patients.	Consistent user-end usage of eHealth application at public hospitals.
Facilitator training and training materials	Training of trainers for community health workers in order to scale-up and disseminate the usage of eHealth to users.	Community Health Workers Community members	Newly well trained staff able to disseminate information about eHealth	100% of CHW ability to navigate end-users on eHealth Usage of eHealth by 25% of Lwala patients	Regular sustained training of trainers Usage of eHealth by 50% of Lwala patients
WHO Recommendations Technological requirements Training materials	Expanding the CommCare and subsequently the piloted application mUzima EMR to provide **clinical decision support** in the screening of CVD with the use of WHO recommendations to calculate risk score.	Community Health Workers Physicians Developers	Training CHW on protocols for screening and clinical decision support	50% of CHWs trained to use clinical decision support to calculate CVD risk score	Continued support and decreased burden for CHW in the field. 100% of CHWs trained to use clinical decision support to calculate CVD risk score 25% of adults in catchment area screened for CVD

APPENDIX C: GROW LOGIC MODEL

Goal: Scale up to other counties in Kenya
Policy: smoking cessation and alcohol

Inputs	Outputs		Outcomes		
	Activities	Participation	Short term	Mid term	Long term
Research Interviews Needs assessments Readiness assessments	Identifying which counties would be most effectively impacted by Lwala's methodology.	Team 9 Lwala MOH Resarch teams	Identifying Kenyan counties that could benefit from Lwala's model	Open line of consistent correspondances and collaboration with those counties.	Sustained support for Lwala's model in these counties and expansion into other counties.
Meeting space Resource guide and materials Additional funding	Connecting with those counties municipalities, health care facilities, and religious institutions	Hospitals MOH Religious Institutions Lwala Community leaders	Identifying stakeholders in the different Kenyan counties.	Garnering the committment of the stakeholders.	Continued support for Lwala's model on the community level.
Train material	Training of trainers to create newly trained Community Health Workers	Migori Community Health Workers	Replicate Lwala's model in one additional community	Replicate Lwala's model in all similarly identified communities	Using Lwala's Facility Improvement Planning through the Plan Do Study Act (PDSA) implementation model to continually tailor facility services and continued improvement.
Policy memo	Policy memo addressing cigarette and alcohol regulation	Ministry of Health Ministry of Commerce Kenyan Government	Create, revise, and finalize policy memo Send to Kenyan government officials	Strengthened regulatory policy on cigarettes and alcohol in place	Overall decrease in cigarette and alochol sales

APPENDIX D: LEVERAGE BRIEF REFERENCES
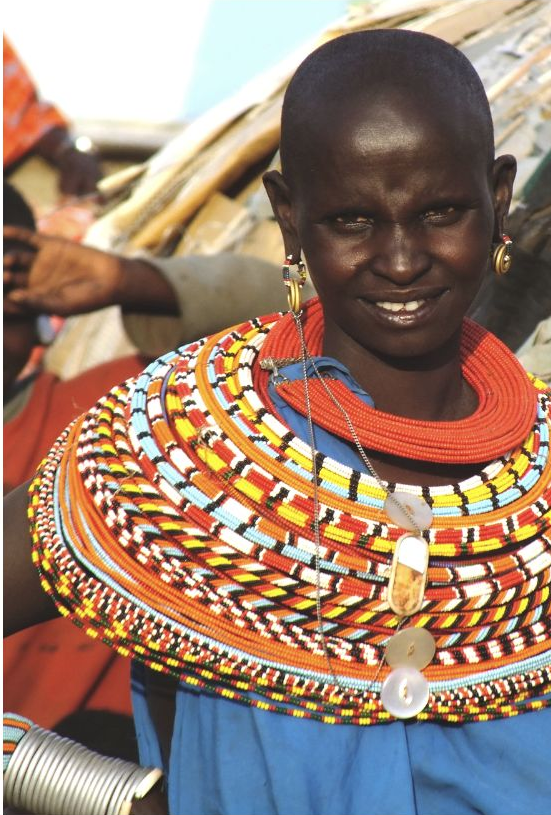
CHWS ARE BEING USED TO MONITOR HTN IN OTHER KENYAN COUNTIES

"close gaps in affordability and accessibility of health services and the empowerment of Community Health Volunteer through education.." (link)

POSITIVE COMMUNITY RECEPTION OF CHW BP SCREENING IN KENYA (AMPATH)

"CHWs programs working with communities to promoting positive health seeking behaviours including successful linkage and retention in care." (link)

MAY 2019KENYAN MOH PLANS VACCINATION FOR GIRLS

"All girls aged 10 years will next year in May be given a cervical cancer vaccine in a bid to rapidly build up their immunity, the Health ministry has said." (link)

APPENDIX E: STRENGTHEN BRIEF REFERENCES

"DEMENTIAHACK" UK/CANADA TO DEMO TO MAJOR COMPANIES AND HEALTHCARE CONFERENCES

"DementiaHack is an international hackathon...that brings together the brightest minds in dementia management, patient care, and healthcare technology to tackle the most pressing challenges..." (link)

KENYA HAS MOBILE HEALTH APP FEVER

"Mobile health platforms are fast emerging in Kenya, where one startup's newly launched mobile health platform is attracting nearly 1,000 downloads daily and...Safaricom, has... 18million subscribers access to doctors." (link)

DEVELOPING EHEALTH POLICIES FOR GREATER EQUITY IN KENYA. (2018, JULY 20)

Lack of government buy-in, lack of participation of e-health users and healthcare providers, and lack of community contribution accounts for many failed ehealth ventures.

APPENDIX F: GROW BRIEF REFERENCES

LISTS OF COUNTIES IN KENYA BY POPULATION, SIZE, WEALTH AND PERFORMANCE

"Chapter 11 of the 2010 Constitution of Kenya provides direction on the devolved governments including principles of devolution, functions of the counties, boundaries of counties, and the relationships between the county and national administration." (link)

EAST AFRICA'S SECOND-TIER CITIES HOLD UNTAPPED POTENTIAL

"...sub-Saharan Africa has undergone a number of changes that have made it a more enticing investment prospect for consumer-focused companies." (link)

APPENDIX G: CODEATHON

CODEATHON
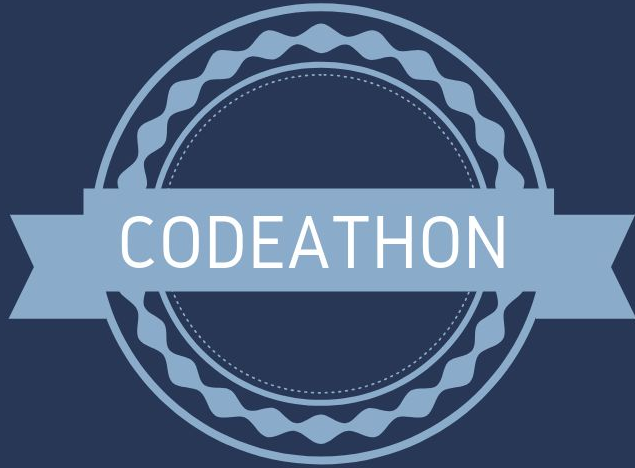
KENYA 2019

48 HOURS
1 WINNER
$100,000

eHEALTH TOOLS

CommCare mUzima *Mobile Technology Saving Lives* KenyaEMR *POWERED BY OPENMRS* salesforce SIMBA *BY MAGNITUDE*

CHALLENGE

Create a user end mobile application that:

- allows control over personal information
- reminders for appointments
- fluidity between hospitals
- patient satisfaction surveys
- and compatibility with KenyaEMR and mUzima

JUDGES

LWALA COMMUNITY ALLIANCE IBM THE WORLD BANK Safaricom

COMPETITORS

Shimba Technologies Ushahidi *iHub_

APPENDIX H: MEDICATION PRICES

$49.28

per person, per year
Metformin

MSH median price:
0.015/500 mg tablet
dose of 1500 mg daily
MPR (Uganda): 3.0

$15.41

per person, per year
Atenolol 15 mg
Captopril 100 mg qd

MSH median price Atenolol:
0.0059/50 mg tablet
dose of 50 mg daily
MPR (Uganda): 2.0

MSH median price Captopril:
.0076/25 mg tablet
dose of 100 mg daily
MPR (Uganda): 1.0

APPENDIX I: GROWTH TIERS

TIER 1

These counties would be ideal for Lwala's model.
Large populations living in the rural area
Few general hospitals but many dispensaries
Poverty prevalence is high

Kwale, Tana River, Taita Taveta, Garissa, Mandera, Marsabit, Isiolo, Tharaka Nithi, Turkana, West Pokot, Samburu, Transzoia, Usain Gishu, Narok, Bomet, Kakamega, Elgeyo Marakwet, Vihiga, Bungoma, Kisii, Nandi, Homabay, Siaya

TIER 2

These counties can likely adopt the model, but barriers include relatively high populations.

Kilifi, Embu, Nyandarua, Kirinyaga, Baringo, Laikipia, Kajiado, Kericho, Kisumu, Nyamira, Murang'a, Meru

TIER 3

These counties are rapidly growing, but still have less urbanized pockets.

Lamu, Kitui, Machakos, Nyeri, Kiambu, Nakuru, Busia

TIER 4

These are the largest counties where urbanization is sprawling and people are in constant transit.

Nairobi and Mombasa

APPENDIX J: LWALA PDSA MODEL

CONTINUE IMPLEMENTAION

FACILITY ASSESSMENT

ADJUST OR DOCUMENT PLAN

DEFINE PRIORITY GAP

COMMUNITY COMMITTEES, HEALTH WORKERS, AND LWALA CLINICAL MENTORS WORK TOGETHER TO IMPLEMENT A CYCLE OF CONTINUOUS IMPROVEMENT

MAKE IMPROVEMENT PLAN

REVIEW OUTCOMES

IMPLEMENT PLAN
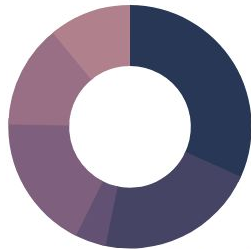
APPENDIX K: BUDGET

Discretionary
10.9%

Application Development
13.7%

Leverage Material
57.3%

Codeathon
18%

Discretionary
10.9%

Training
31.8%

Application Development
13.7%

Diabetes Care
21.5%

Codeathon
18%

Intemized Expenses				FY1	FY2	FY3	Total	Average
Leverage Material								
Annual Totals:	Price	Amount	Unit	$132,818	$105,518	$105,518	**$343,853**	**$114,618**
Training Material	$50	210	Course	$10,500	$0	$0	$10,500	$3,500
Training Salary	$12,000 [1	5 [2]	People	$60,000	$60,000	$60,000	$180,000	$60,000
Glucometers	$20	210 [3]	Units	$4,200	$4,200	$4,200	$12,600	$4,200
Reagent Slips	$0.14	50,000 [4]	Units	$7,000	$7,000	$7,000	$21,000	$7,000
Alcohol Swabs	$0.19	50,000	Units	$9,500	$9,500	$9,500	$28,500	$9,500
Lancets	$0.21	50,000	Units	$10,500	$10,500	$10,500	$31,500	$10,500
Auto Blood Pressure Cuffs	$80	210	Units	$16,800	$0	$0	$16,800	$5,600
Atenolol 15 mg and Captopril 100 mg qd	$15.41	168	Persons	$2,589	$2,589	$2,589	$7,767	$2,589
Metformin 500 mg tid	$49.28	238	Persons	$11,729	$11,729	$11,729	$35,186	$11,729
Codeathon Expenses								
Annual Totals:	Price	Amount	Unit	$108,000	$0	$0	**$108,000**	**$36,000**
Online Marketing	$200	10	Weeks	$2,000	$0	$0	$2,000	$667
Radio Marketing	$100	10	Weeks	$1,000	$0	$0	$1,000	$333
KICC Convention Space	$2,500	2	Days	$5,000	$0	$0	$5,000	$1,667
Seed Money	$100,000	1	Winner	$100,000	$0	$0	$100,000	$33,333
Application Development								
Annual Totals:	Price	Amount	Unit	$48,572	$16,943	$16,943	**$82,458**	**$27,486**
iOS Developer	$12,143	1	Year	$12,143	$0	$0	$12,143	$4,048
Back End Developer	$12,143	1	Year	$12,143	$0	$0	$12,143	$4,048
UI Designer	$12,143	1	Year	$12,143	$0	$0	$12,143	$4,048
Online App Marketing	$800	6	Months	$0	$4,800	$4,800	$9,600	$3,200
Maintenance Developer	$12,143	1	Person	$12,143	$12,143	$12,143	$36,429	$12,143

Summary	Project	FY1	FY2	FY3	Totals			
	NCD Screening Material	$132,818	$105,518	$105,518	$343,853		**Training**	$190,500
	Codeathon Expenses	$108,000	$0	$0	$108,000		**Diabetes Care**	$128,786
	Application Development	$48,572	$16,943.00	$16,943.00	$82,458		**Hypertension Care**	$24,567
	Grand Total				$534,311			
	Average Annual				$178,104			
	Discretionary				$65,689			

APPENDIX L: GANTT CHART

TASK TITLE		YEAR 1												YEAR 2												YEAR 3											
		Q1			Q2			Q3			Q4			Q1			Q2			Q3			Q4			Q1			Q2			Q3			Q4		
		J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
1	**Program Conception and Initiation**																																				
1.1	Program Charter																																				
1.1.1	Research																																				
1.1.2	Scope and Goal Setting																																				
1.2	Winning Case Competition																																				
1.3	Program Charter Revision																																				
1.3.2	NCD Program Integration																																				
1.3.3	Program Continuation																																				
2	**Leverage**																																				
2.1	Training of Trainers																																				
2.1.2	Training of CHW																																				
2.3	Initiation of Field Screening																																				
3	**Strengthen**																																				
3.1	Planning Codeathon																																				
3.1.2	Marketing Codeathon																																				
3.1.3	Codeathon																																				
3.2	Develop NCD EMR																																				
3.2.2	Pilot NCD EMR																																				
3.2.3	Revise NCD EMR																																				
3.2.4	Launch NCD EMR																																				
3.2.5	Regular Usage of NCD EMR																																				
4	**Monitoring & Evaluation**																																				
4.1	Pre-Tests																																				
4.1.2	Post-Tests																																				
4.1.3	Follow-up Tests																																				
4.2	Quality Improvement																																				

APPENDIX M: POLICY BRIEF ON SMOKING

13.3% ADULT SMOKERS

- Current policy: data pulled from Tobacco Atlas (ACS source)
- Currently part of WHO FCTC
- Designated smoking areas in most public places, Tobacco Control Act 2007
- Current excise tax is 38.46% of retail price, WHO recommends 70%
- British American Tobacco (BAT) Kenya has a strong lobbying presence

WHO BEST BUYS COSTS <$100 PER DALY AVERTED

- Increase excise taxes and prices on tobacco products
- Implement large, graphic health warnings on packages
- Eliminate exposure to second-hand smoke in public places

APPENDIX N: POLICY BRIEF ON ALCOHOL

19.3% ADULT DRINKERS

- 19.3% of adults are current drinkers (last 30 days)
- 33.8% of men and 5.4% of women
- 61.3% of adults are lifetime abstainers
- 23% urban, 17% rural
- 13% engaged in heavy drinking (6+ drinks) in last month
- 36% had consumed unrecorded alcohol in past year

WHO BEST BUYS COSTS <$100 PER DALY AVERTED

- Increase excise taxes on alcohol
- Restrictions on alcohol advertising
- Reduce availability of retailed alcohol (reduced hours of sale)

APPENDIX O:

S.M.A.R.T. OBJECTIVES

LEVERAGE

Leverage Lwala's current infrastructure to support NCD prevention and treatment by training 5 trainers a year for 3 years.

In the first year, develop HIV specific noncommunicable disease screening protocol for HAWI.

STRENGTHEN

In the first year, host one codeathon for Kenyan application developers to develop one patient centered application specific to Lwala's mission.

GROW

By the end of the third year, prepare strategic plan for the expansion of Lwala's catchment area into three surrounding subcounties.

By the end of the third year, develop a policy memo on the regulation of smoking and alcohol that expands Kenya's current regulations.

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