

The Burden and Management of URTI in the Primary Care facilities: a COPC project by Family Medicine Residents in Kaloleni Sub- County, Kenya

Report on COPC activity by level III MMed Family Medicine Residents at the Aga Khan University-
Nairobi conducted from the 7th of January to the 15th of February, 2019

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Declaration

We hereby affirm that this is our own original work and it has not been submitted to any other institution or organisation.

Acknowledgements

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- iv. The health facility staff at Gotani Health Centre and Tsangatsini dispensary for their hospitality and facilitation when needed and participating in the discussions and the CME
- v. The community health volunteers and extension workers for their invaluable support
- vi. All the community members, caregivers, who participated in the exercise
- vii. The department of family Medicine for supporting this project.



Executive Summary

This report describes the Quality Improvement (QI-)project, that was done in the six weeks rotation in COPC by level III family medicine residents of AKUH. The QI-project identified and prioritized health needs and put interventions in place to address the identified needs.

The health needs prioritization was achieved through

- i. collaborating with both the stakeholders and community health team.
- ii. focus group discussions with the community health volunteers in 3 community health units and with health facility staff
- iii. participating in the daily provision of the clinical services in the health needs
- iv. secondary data from HMIS, from the Kaloleni sub-county health records and morbidity data from the health facility

The rotation was facilitated by the AQCESS project which was to provide a platform for assessing the impact of the family medicine rotation in the project site area.

We identified two major health care problems

- i. A steep increase of cases of URTI over the last 4 years presenting at the facilities. The cases were not treated following existing Kenyan clinical guidelines. Antibiotics and antihistamines were used in the majority if not all cases of simple URTI in both under 5s and over 5s
- ii. high cases of malaria in 2018 more so in the over 5 age group.

The use of antibiotics was also noted to decline in the first week of January 2019 in comparison to the first week of October 2018. This was linked to the IMCI refresher course that was carried out in November 2018, indicating that an intervention could be promising.

Various reasons were given as to why there were many community members presenting to the facility with URTIs, both by the staff and the CHVs. Most prominent were poor hygiene practices such as hand washing, poor ventilation of houses, lack of awareness of the clinical course of common cold and flu prompting the mothers to seek early treatment.

The health facility staff added: Inadequate health seeking behaviour from patients, patients expectations to receive medications such as Abs and antihistamines for the URTI, high workload at the facility making it difficult to individually counsel the mothers on the watchful waiting approach of URTIs as well as the use of home remedies.

Malaria was not selected as a prioritized health needs as the team thought it has ample diagnostic (rapid tests) and adequate treatment (antimalarials) and adequate health seeking behaviour. Promoting the use of nets needed attention

Following the health need prioritization, a literature search was done from PubMed, Google Scholar and by the Snowball method. The keywords used were URTI and Guidelines, URTI and Antibiotic use, and URTI and Global burden. About 7 articles were selected for the literature review.

An interactive participatory education intervention with the health facility staff was done on adherence to the clinical guidelines on URTI. The purpose of the intervention was to increase the adherence to IMCI for under the 5 years old and adherence to the Kenyan Government Clinical Guidelines for the over 5s. The education intervention had a pre and post-test to increase the impact. It was fully interactive, asking staff about their own handling of their URTI's. One nurse suggested to hold morning talks, that got high approval.

The adherence to the said guidelines will be assessed by a 3 months post intervention period on the treatment of URTIs at this two facilities as well the percentage of patients presenting with URTIs at this two facilities using existing data collected by the PH dep.

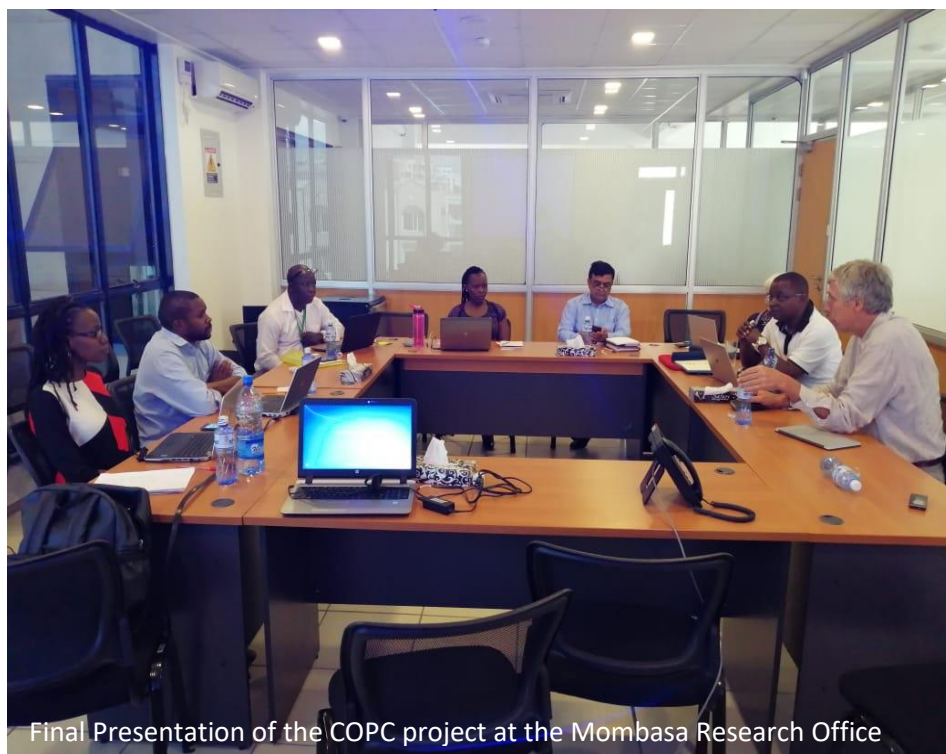
Limitation of this project are the limited number of health centres, the limited intervention, and the pending evaluation of the impact of the intervention and reliance on secondary data from the health facility.

In conclusion we found the management of URTI to be a highly relevant subject.

URTI is a universal problem and due to its self-limiting nature it can be comfortably managed at home without adding unnecessary patient burden to the health facilities.

The overtreatment, the overuse of AB and antihistamines and the unnecessary visits could if reversed save enormous costs and workload for the Kenyan Health care system.

More awareness needs to be created through community interventions either by use of health talks at the facility or involving CHV's key persons in the community.



Final Presentation of the COPC project at the Mombasa Research Office

Introduction

This is a report submitted by level III Family Medicine Residents following a Community Oriented Primary Care (COPC) rotation at Mariakani, Kaloleni Sub- County in Kilifi County. The duration of the rotation was from the 7th of January to the 15th of February, 2019.

This was the second COPC exposure for the level III Family Medicine Residents the first being in September 2017 on the burden of skin diseases.

COPC Training in Family Medicine

The Mariakani rotation is a six weeks internship in COPC that is part of the family medicine training curriculum. According to WHO COPC is defined as “quantitative and qualitative description of the health of citizens and the factors which influence their health. It identifies problems, proposes areas for improvement and stimulates action” Gofin et al., 2015). Also, COPC is a model of health care delivery that tightly integrates primary care and public health.

The purpose of our rotation was to identify and prioritize the health needs by using a team based approach, and by collaborating with the community health team. The Family Medicine Residents were to identify the health needs of the community, prioritize and implement an intervention.

This will be the basis for a reassessment of priorities and the continuation of the COPC process. Trainees will also learn about: establishing a multidisciplinary team to lead COPC activity; encouraging effective participation of the community both formally and informally; using health information management systems in supporting COPC.

They will support the health systems of the local community by participating in ongoing training of the community health workers who are a link between the Family Physician and the community.

Under the leadership of the AQCESS project, we worked closely with and supported the person in charge and the key staff of the health facility where we were posted under the supervision of the Sub-county Health Management Team.

The academic supervision was provided by the Aga Khan University Family Medicine Department and by visiting family medicine physician faculty from the Netherlands to ensure that the curriculum requirements are met and that we were adequately supported in line with the academic objectives.

Support from AQCESS

The current rotation was facilitated by the AQCESS project (Access to quality care through Extending and strengthening Health systems). This is a four (4) year project undertaken by the Aga Khan University funded through a Canadian grant aiming at improving the health outcomes of the children less than 5 years of age and of women of the reproductive age group through the strengthening of the health care systems. The site of the project is in Bomachoge, Kisii County and Kaloleni, Kilifi County.

In its final two (2) years the AQCESS project accommodated the short term placement of Family Medicine residents in the Kaloleni site to undertake a COPC activity in line with the requirements of the MMed Family Medicine Curriculum.

The broad objective of the partnership was for the AQCESS project to provide a platform for assessing the impact of the family medicine rotation in the project site area on the health system.

In this framework the level III Family Medicine Residents would be expected to develop community leadership skills, identify an intervention to address the community diagnosis and provide clinical expertise in the health facilities whilst providing mentorship to the facility staff.

For more information on the partnership between Family Medicine Department kindly see Appendix 1: AKU Family Medicine Resident Rotation Programme under the AQCESS Project.

Objectives for the rotation

For the current rotation below were the broad objectives of the rotation as excerpted from Appendix 1: AKU Family Medicine Resident Rotation Programme under the AQCESS Project.

1. Enable the acquisition of the desired knowledge and skills of FM residents to practice Community Oriented Primary Care (COPC) and collaborate with the community and primary health teams in a rural setting
 - a) Prioritise health problems with special attention for gender inequalities as well as more vulnerable groups
 - b) Identify suitable approaches at COPC level to improve health / address health problems
2. Enhance capacities and skills of rural health facility staff in service management, patient management, quality of clinical care, implementation of health promotion and preventive activities
 - a) Provide clinical knowledge and mentorship to the rural facility staff in patient management, quality of clinical care, implementation of health promotion and preventive activities
 - b) Contribute expertise to the rural health facility staff in overall management of the health facility in order to ensure continuous quality of care and cost-effectiveness

Kaloleni Area

Geography

Kaloleni is found in Kilifi County in the coastal region of Kenya, and is one of the 7 Sub-counties. The geographical area is about 686.40 km² and the estimated population is 209,959 (National 2009 Census).

Kaloleni Sub County has 4 wards, namely Mariakani, Mwanamwinga, Kaloleni and Kayafungo.

The climate of the area is generally warm throughout the year with temperatures ranging between 21 degrees during the coldest months (June and July) and 32 degrees during the hottest months (January and February). The County receives between 900 mm and 1000mm of rainfall annually. It has 2 rainy seasons: April to June (Long rains) and October to December (short rains).

The People

Kayafungo ward has a population of thirty nine thousand, three hundred and twenty seven (39,327) people of different background including the Durumas, Rabais, Kambas, Digos, Chonyis, Abalauhya, Kikuyus, Arabs, Somalis and the dominating tribe, the Giriama.

Religion Language and Culture

Majority of the people are either Muslims or Christians, albeit the county has several smaller religious communities such as the African Indigenous Religion and Hindu. Kiswahili and Mijikenda language are widely spoken across the county. The Mijikenda (nine cities) is a wider grouping that comprises nine sub-tribes; Giriama, Digo, Chonyi, Kamabe, Jibana, Kauma, Duruma, Rabai and Ribe.

Economy

The Giriama are largely subsistence farmers, growing crops and rearing small flocks of domestic animals especially cows and goats. They on occasion grow cash crops such as cashewnuts and coconuts.

Health Organization

Majority of the people seek health services from the public health facilities, either the level 2 or 3 facilities. There are also some private facilities within the area which offer an alternative option to some community members.

This study is based in Kayafungo ward with a catchment population of about 39,327 people. Kayafungo ward is served by 3 dispensaries (Rabai, Tsangatsini and Kinarani) and one health centre (Gotani) of which Gotani Health Centre and Tsangatsini dispensary were selected for the study.

The Sub County Medical Officer of Health heads the Sub county health team (SCHMT) which is responsible for the co-ordination of the health activities and services. The SCHMT is a team consisting of 15 members of different specialities.

Map 1

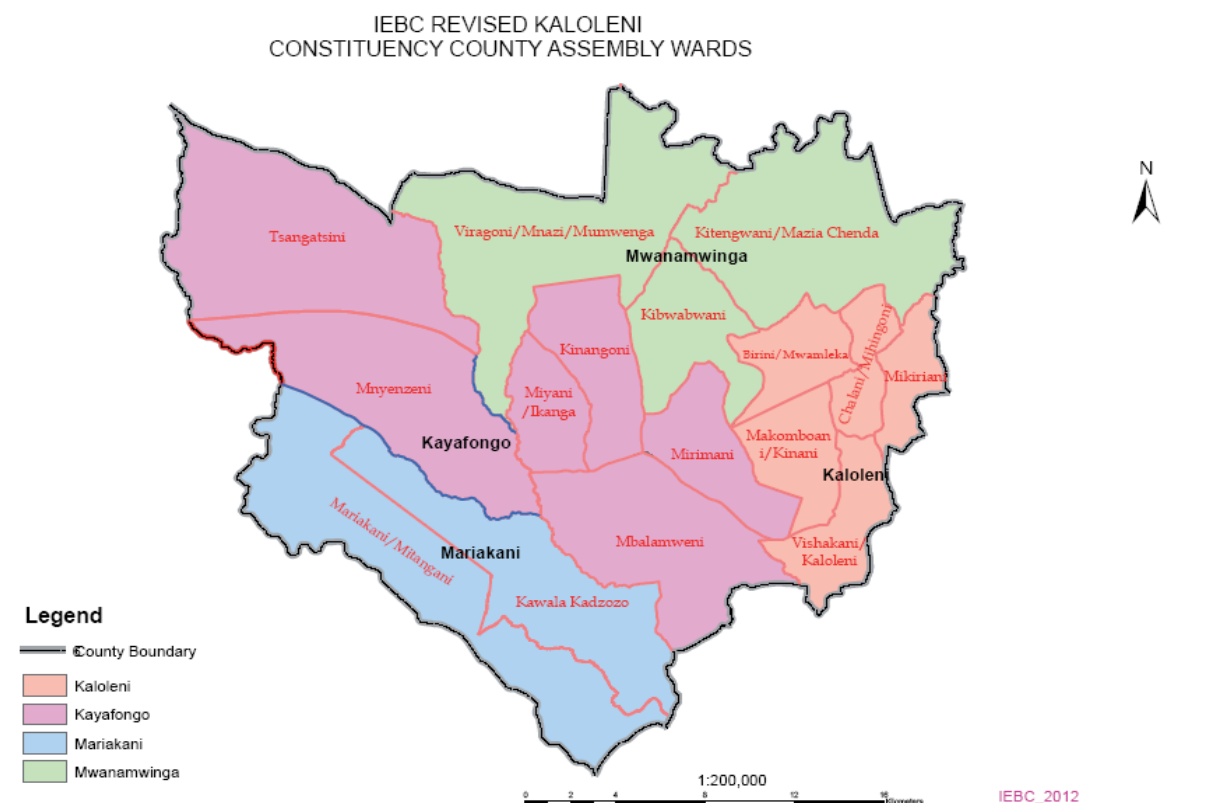


Image sourced from <http://www.kilifi.go.ke/>

Map 2

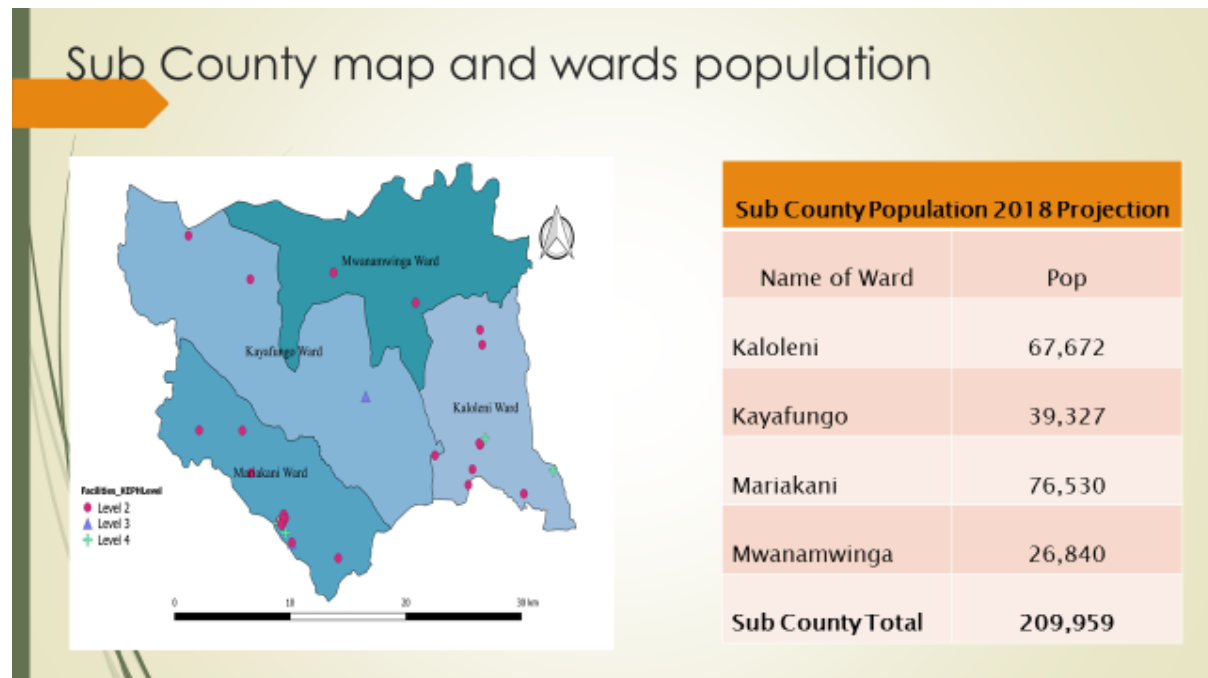


Image sourced from Sub County Health Data records office

Figure 1

Health Facilities by Category in Wards

Facility level	Kaloleni	Kayafungo	Mariakani	Mwanamwanga	Total
Hospital	1	0	1	0	2
Health centre	0	1	0	0	1
Dispensary	4	3	3	2	12
Total	5	4	4	2	15
Community units	5	5	5	4	19

Image sourced from Sub-County Health Data Records Office.

Identification and prioritisation of the health problems

Methods employed to identify and prioritise the health needs

1. Participation in the provision of daily health care service

The Family Medicine Residents provided clinical care to patients and mentorship to the facility staff on every Monday, Tuesday and Wednesday that was free from other rotational requirements

2. Meetings with the Stakeholders

Subcounty health management team: Meetings were held with the Kaloleni Sub County health staff (including the sub county medical officer of health, public health officer, data officer)

The AQCESS team: status update meetings were held with the AQCESS team every Thursday of the week to provide guidance and ideas on progress

Community Health Units: at any opportunity availed courtesy of the AQCESS programs discussion were held with the community health units

Health Workers: discussions were held with the facility staff during the provision of clinical services on the health needs

3. Review of the Morbidity Data from the HMIS

Access to the Health Management Information System (HMIS) was provided by the sub-county data officer to procure information on morbidity



Attending an AQCESS meeting on MNCH

Findings on identification of the health needs

In summary the health needs that were identified by the above methods were as below:

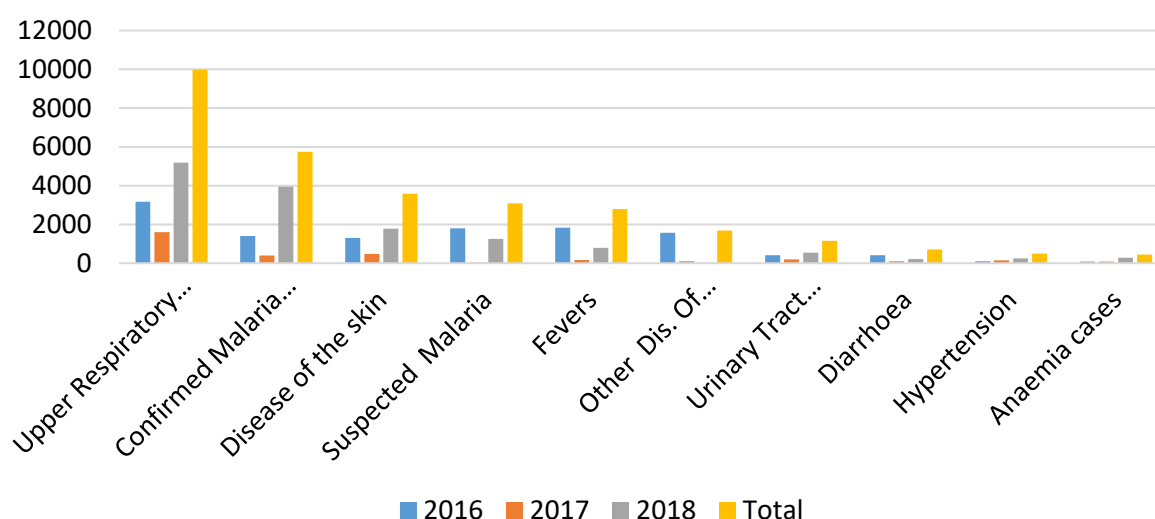
1. The high prevalence of URTI in the presentation in the health facility
2. Deviation from clinical guidelines in the management of URTI
3. High cases of malaria in 2018

These will be further explored as they were identified through the different methods.

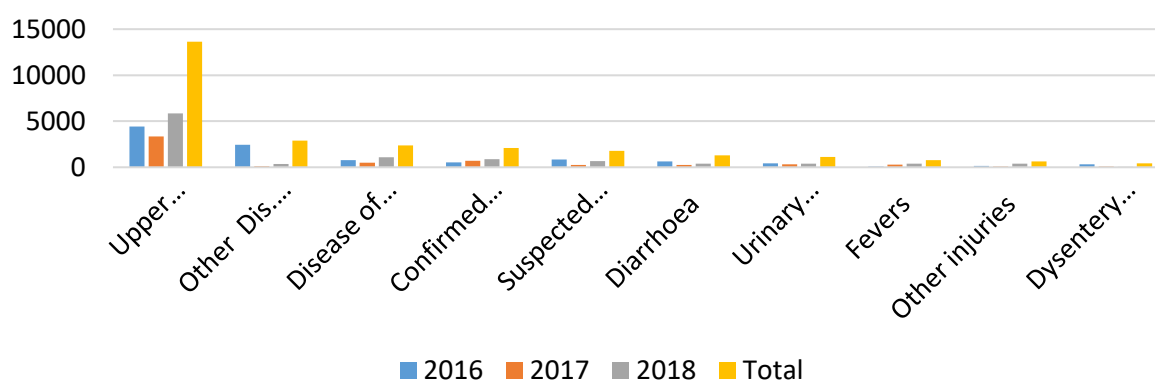
Findings from the morbidity data

Below are graphs 1 - 4 depicting the morbidity data as obtained from the HMIS for the two health facilities:

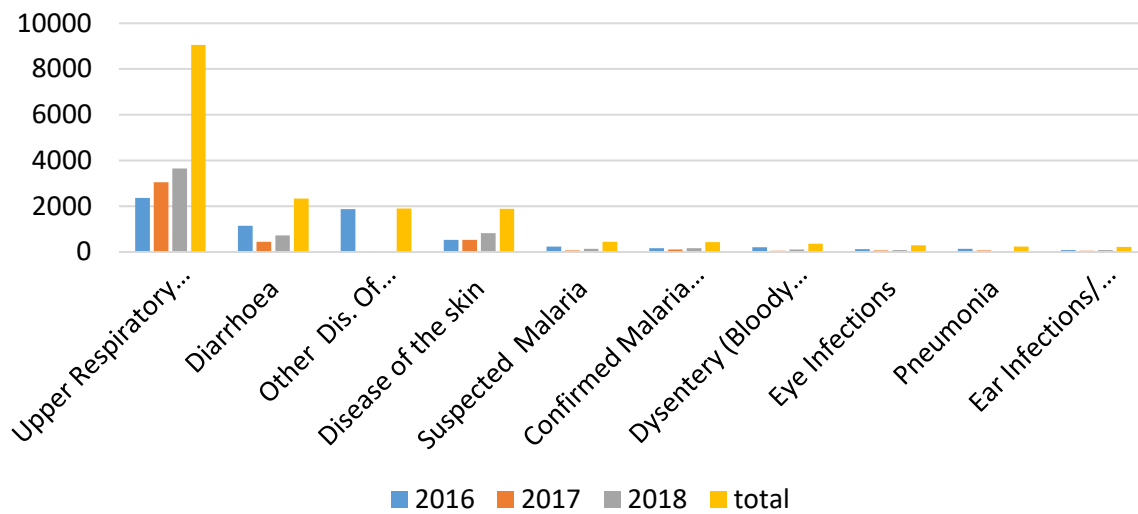
Graph 1 Morbidity data for the top 10 conditions in Gotani Health Centre for the period 2016 - 2018 in the over 5 population



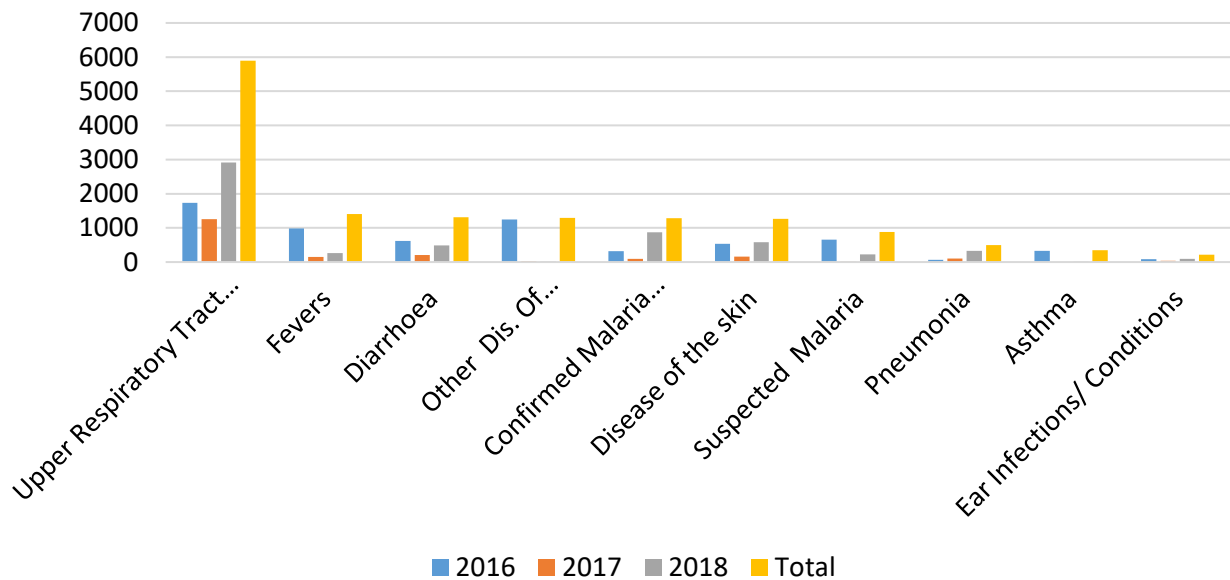
Graph 2 Morbidity data for the top 10 conditions in Tsangatsini dispensary for the period 2016 – 2018 in the over 5 population



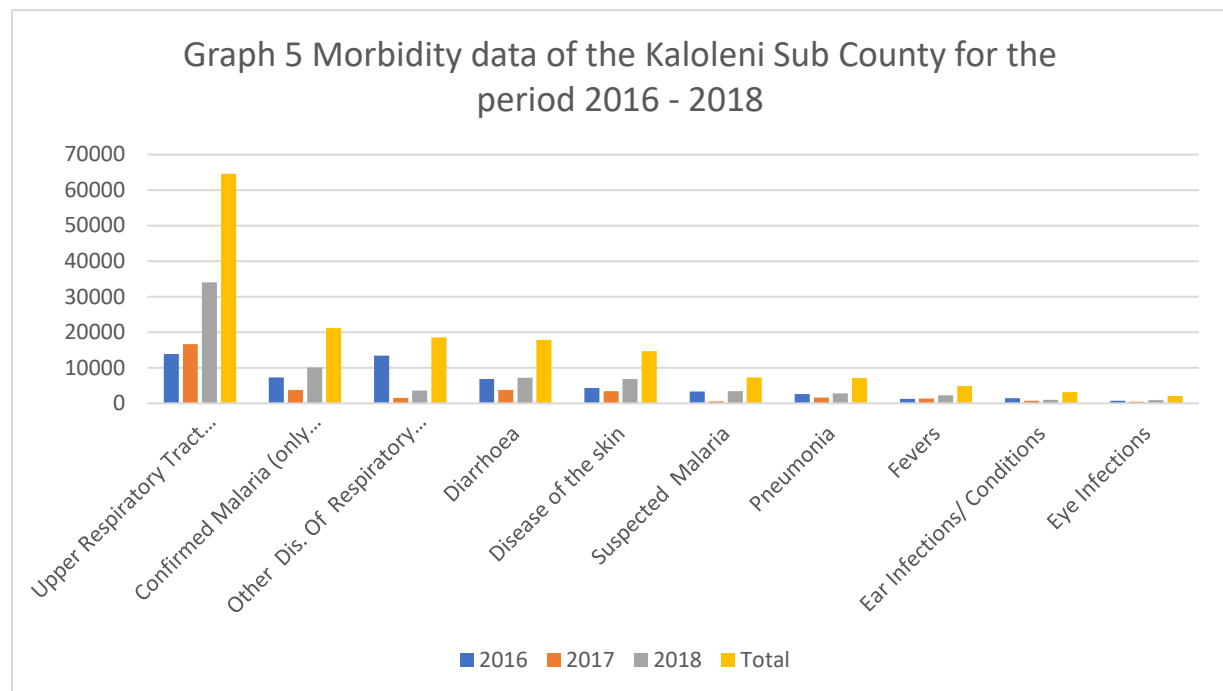
Graph 3 Morbidity data for the top 10 conditions in Tsangatsini Dispensary for the period 2016 - 2018 in the under 5 population



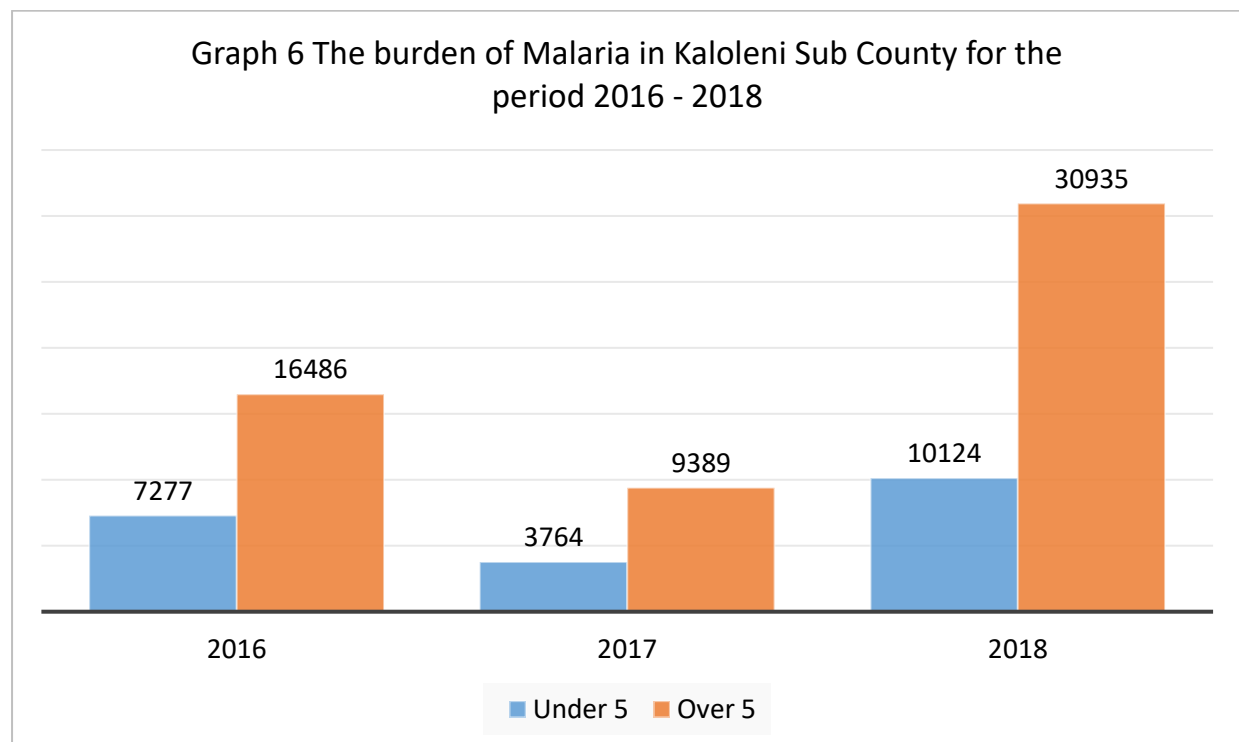
Graph 4 Morbidity data for the top 10 conditions in Gotani Health Centre for the period 2016 - 2018 in the under 5 population



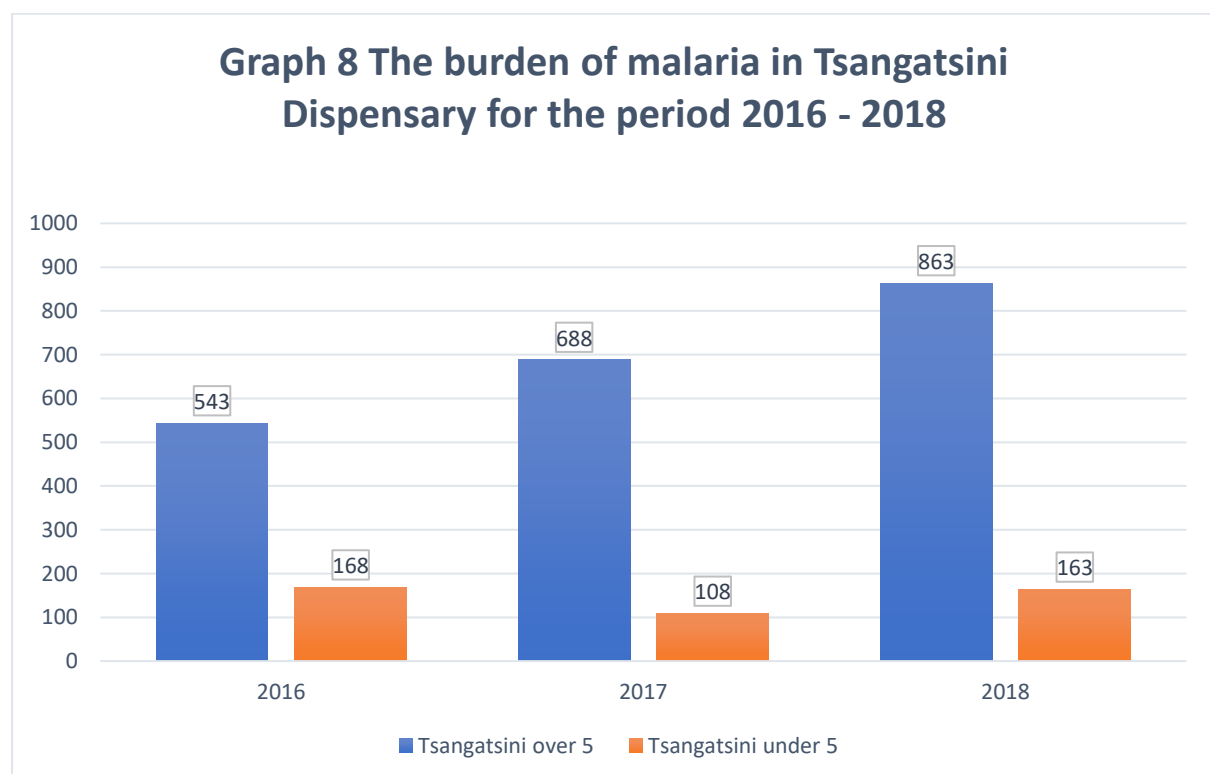
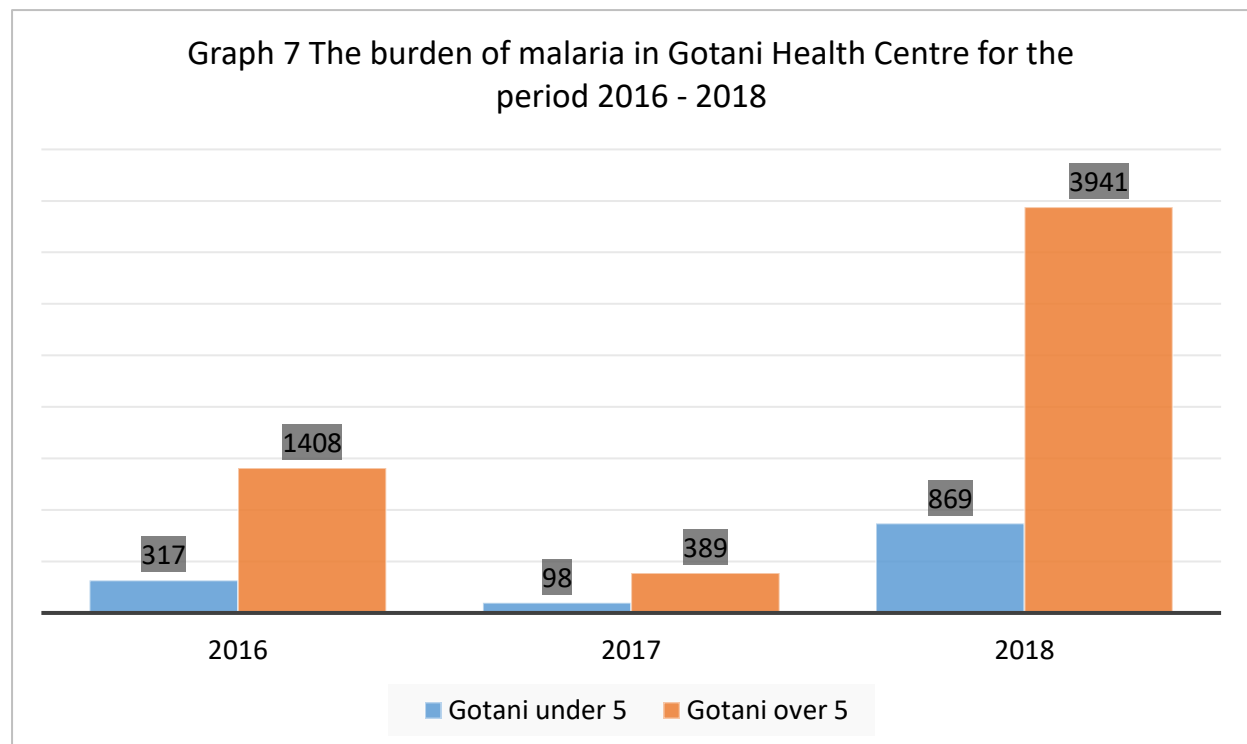
The pattern of the burden of URTI as the most common made diagnosis was equally similar in the morbidity data for the larger Kaloleni Subcounty as shown in Graph 5 below:



Notable as well from this data was the rise in the prevalence of malaria in 2018 as compared to the year 2016 and 2017. This is clearly depicted in graph 6 below:



The burden of malaria was noted to be higher in Gotani Health Centre as compared to that in Tsangatsini as shown in graph 7 and 8.



We concluded from the graphs that both URTI and Malaria were the most pressing health problems presented.

Findings from discussions with the community health volunteers

Discussion on URTIs

- i. There is lack of awareness within the community members about the natural course of illness of common colds and basic hygiene standards required in preventing the spread of common colds. Some will rush to the facility even within 2 days of the onset of symptoms of common colds.
- ii. Community members share medication and other drugs prescribed from the facility.
- iii. Most community members have poor hygiene practices within their households such as handwashing, meaning URTIs tend to spread fast between household members.
- iv. There is frequent and often unnecessary use of OTC antibiotics from local pharmacies for URTI's.
- v. Poor housing conditions (most houses within the community lack windows) encourages the spread of URTIs between the household members.
- vi. Occasionally change CHVs who are supposed to be change agents have the same approach and perceptions on URTIs as community members. If they suffer from a common cold they tend not to practice home remedies but instead seek treatment from health facilities for the URTI.

Discussions on malaria

Discussions were held on the possible reasons as to why the malaria cases had increased from the period 2017 – 2018. These are listed below

- i. Weather patterns. This emerged as the main contributor to the rise in cases. It emerged that there was decreased rainfall in 2016 / 2017 with heavy rainfall in 2018. This resulted in more water collection points which could act as breeding zones and an increase in the vegetation.
- ii. Community events. It emerged that during burial ceremonies the mourners would spend prolonged period of time in the open compound at night and eventually sleep outside.
- iii. Usage of nets. It was discussed that there are several barriers to the usage of the insecticide treated nets including the following
 - a. The association of bed nets to the rituals of handling the dead whose casket before the burial is covered in a net
 - b. Fears of auditory hallucinations while sleeping inside the net
 - c. Damaged nets
 - d. Lack of bed or sleeping mats and hence the perceived lack of need for the net
 - e. Inability to properly tuck in the net after waking up at night
 - f. Tendency to use insecticide treated nets only in what is perceived to be a high malaria season.
- iv. Sleeping outside due to heat
- v. Poor compliance to the treatment with cases of not completing the dosage; sharing of the dose of the for malaria treatment amongst household members who are sickly.

Findings from discussion with the facility staff on URTIs

- i. Most members of the community tend to seek treatment in the facilities for common cold even when they are aware that that may not be necessary because they are convinced that they will receive medication as long as they are seen in the facility. It contributes to the high number of patients presenting at the facility with URTIs.
- ii. Patients tend to seek treatment outside the facility in local private clinics if they are denied antibiotics yet they were expecting them from the facility. Antibiotics are readily prescribed at the local private pharmacies without prescriptions.
- iii. Most facility staff feel under pressure to prescribe antibiotics when parents request it as most parents feel their children are not adequately treated for URTIS without an antibiotic prescription.
- iv. Many a times they prescribe antibiotics as a prophylactic measure in case the children get worse and do not have an opportunity to come back to the clinics/health facility.
- v. They feel the IMCI guidelines/protocols are insufficient in that information regarding the treatment of other forms of URTI is missing from the guidelines. Such as management of Acute Sinusitis, pharyngitis and tonsillitis.
- vi. They feel pressed for time due to the workload they have to deal with. They lack the time to counsel and reassure mothers and parents the reason why antibiotics are not required. This means that they have to prescribe antibiotics as a cautionary measure so as to “not to miss” a bacterial infection.

Findings from the clinical experience

On malaria

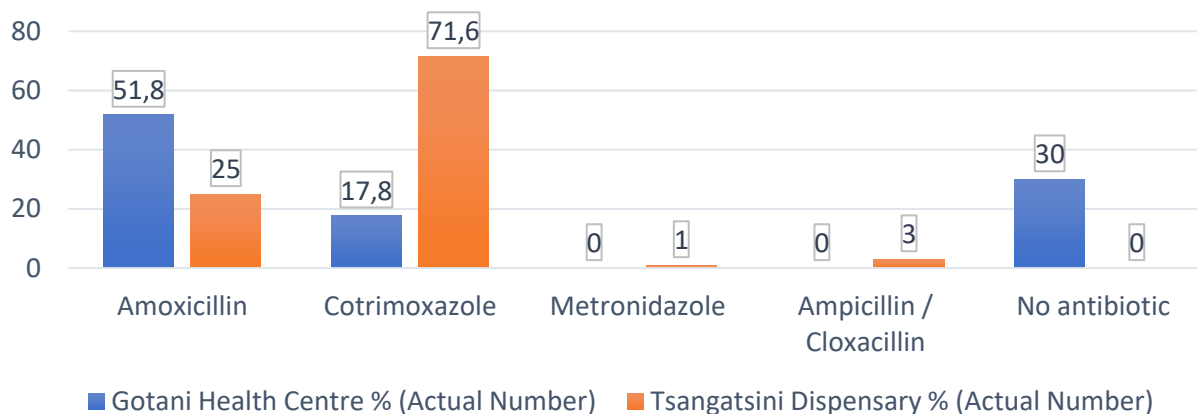
- i. it was observed that the provision of the diagnostic services were adequate with the availability of the malaria rapid diagnostic tests in both health facilities and the microscopy in Gotani Health Centre
- ii. the availability of the antimalaria drugs was adequate both the oral artemether lumefantrine combination and the intravenous artesunate for the complicated cases
- iii. spatial difference in the burden of malaria was also observed with a higher burden witnessed in Gotani health centre (whose environs contain more vegetation) than in Tsangatsini dispensary (which is drier).
- iv. The presentation of most patients with malaria symptomatology was timely with most seeking care after a 1 day history of fever, headache, joint pains and generalised malaise.

On URTI

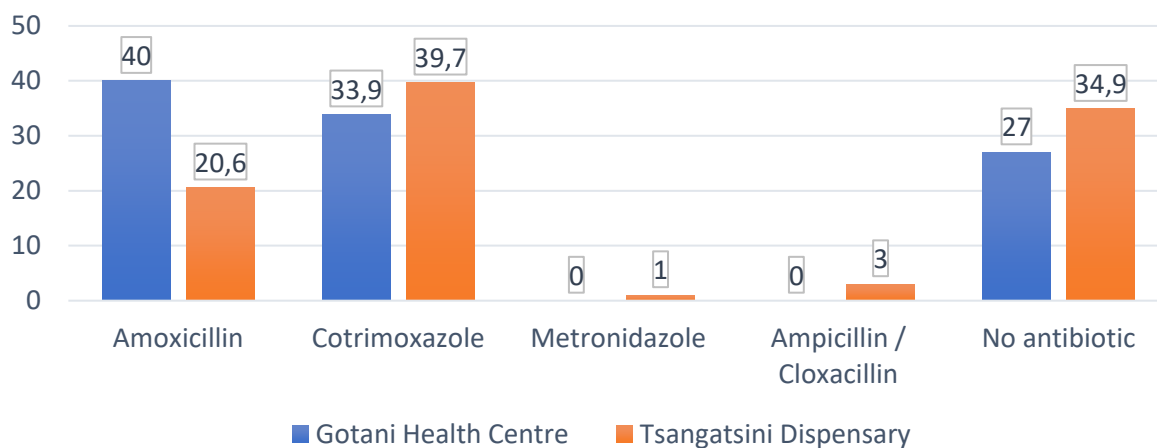
The Family Medicine Residents conducted a cross sectional look at the daily outpatient registers to elucidate the use of antibiotics in the management of URTI.

Below are graphs 9 - 12 depicting the use of the different antibiotics in the month of October 2018 and the month of January 2019:

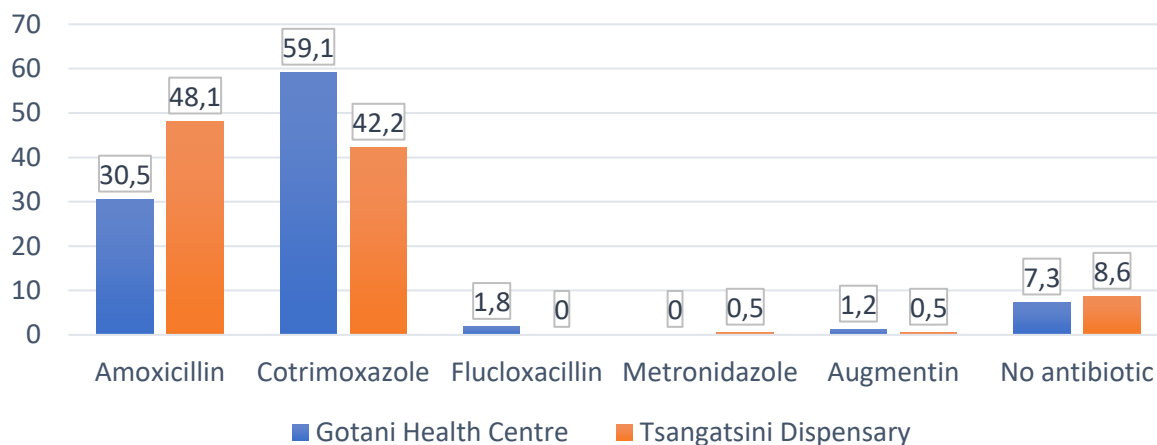
Graph 9 Showing the choice of antibiotics as percentage of 56 patients managed for URTI in Gotani Health Centre and 88 in Tsangatsini Dispensary in the under 5 age group for the period of 1st October to 5th October, 2018



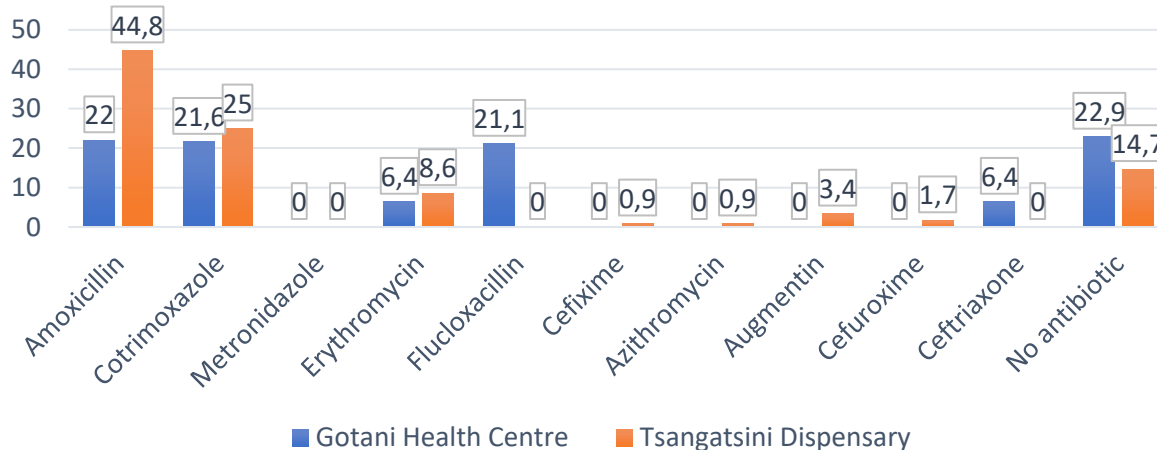
Graph 10 Graph 9 Showing the choice of antibiotics as percentage of 59 patients managed for URTI in Gotani Health Centre and 63 in Tsangatsini Dispensary in the under 5 age group for the period of 1st January to 7th January, 2019



Graph 11 Graph 9 Showing the choice of antibiotics as percentage of 164 patients managed for URTI in Gotani Health Centre and 185 in Tsangatsini Dispensary in the over 5 age group for the period of 1st October to 5th October, 2018

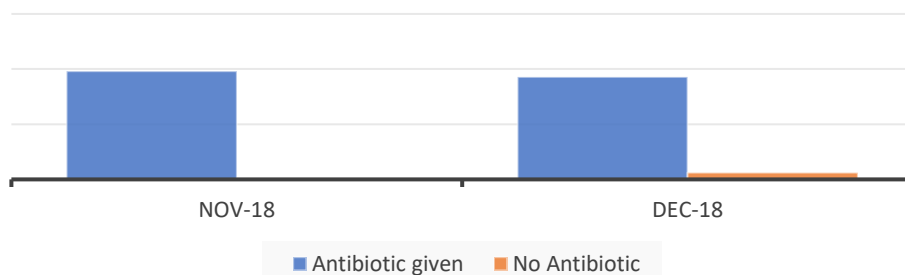


Graph 12 Graph 9 Showing the choice of antibiotics as percentage of 109 patients managed for URTI in Gotani Health Centre and 116 in Tsangatsini Dispensary in the over 5 age group for the period of 1st January to 7th January, 2017

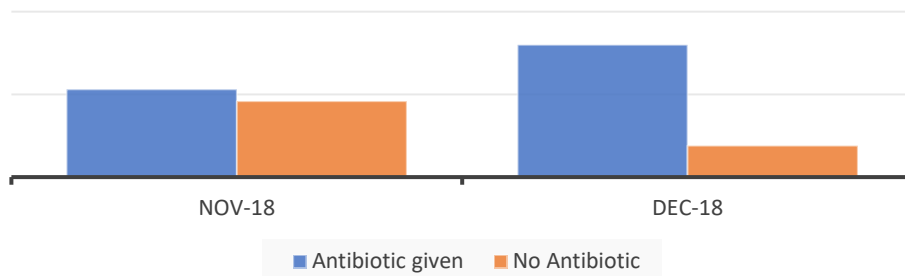


On reviewing records for all patients seen with URTI at Gotani Health Centre in November and December 2018, the same trend of increased use of antibiotics in management of URTI was observed.

Use of antibiotics in the management of URTI at Gotani Health centre for over 5 as percentage of 351 patients in Nov-18 and 732 in Dec-18



Use of antibiotics in the management of URTI at Gotani Health centre for under 5 as percentage of 185 patients in Nov-18 and 254 in Dec-18



In addition, the Family Medicine Residents offered clinical care in the outpatient departments and below are the observations which were made as regards URTI:

- i. The health seeking behaviour for what eventually was a viral URTI was high with most presenting with complaints of a cough and running nose but with no features of a lower respiratory tract infection or secondary bacterial infection.
- ii. The driving fear especially in the mothers was the concern as to why the symptoms had persisted despite the pre-medications employed. These often included aspirin combinations, fixed drug combinations with paracetamol and antihistamine.
- iii. The mothers on further inquiry to explore the fears, were aware of the different presentation that pneumonia would have. Often they would describe fast breathing with a sick looking child which was different from a child who presented with a URTI.
- iv. The patients' expectations involved a request for medications to take away the symptoms of the URTI. Dissatisfaction with care provided was often perceived despite having a discussion on the red flags upon which they were to come back to the hospital.
- v. The mothers often brought all the children in their household who had URTI hoping to receive medications for all of them
- vi. School going children often missed school to receive care for the symptoms of URTI
- vii. The percentage of patients treated for URTI by the Family Medicine Residents with antibiotics was close to zero. All the patients could be managed with reassurance and home remedies like honey and lemon.
- viii. Most parents and patients rarely tried home remedies such as lemon and home before bringing their children to the health facility as the felt this was unattainable. Honey was costly and lemon was not easily available as it was not grown in some of the villages.



Dr Florence Mbatia offering clinical care at Gotani Health Centre



Dr Nelson Nyamu offering clinical care at Gotani Health Centre

Arguments for the decision to focus on URTI as the Health Priority

The residents perceived that the care and intervention towards addressing the high cases of malaria were adequate. This was as evidenced by:

- i. The community interventions by the CHVs and the office of the public health officer to sensitise the community on
 - a. Use of nets
 - b. Completion of the antimalarial treatment
 - c. Clearing of the environment of high vegetation and stagnant water
 - d. Distribution of malaria nets to the community members through the health facilities
- ii. The management of malaria in the health facilities was also deemed adequate as evidenced by the availability and prompt use on malaria diagnostic services (mRDT and microscopy) and the provision of treatment as per guidelines.

However as regards URTI there was room for improvement as regards

- i. enhancing adherence to the guidelines and hence limiting the use of antibiotics to only the conditions where they are indicated
- ii. addressing the high load of patients who present at the health facilities seeking treatment for URTI which ideally should be managed conservatively.



At one of the water pans at Gotani



Holding a discussion with the CHVs whilst undergoing training by the AQCESS team

Consultation of the literature

Worldwide burden of URTIs

Worldwide the common cold, which is often a viral upper respiratory tract infection (URTI) accounts for the most common reason to seek care from the health care givers (Tan et al., 2015). Allan and Arroll (2011) define URTIs as an acute infection of the pharynx, nose, sinus, middle ear, larynx, epiglottis and bronchus. The common cold being the most common URTI.

In the Western developed countries, the common cold accounts for close to 20% of all the consultations (Marengo et al., 2017). In a recent study by Elisante et al., 2018 on the diagnoses made in the Emergency Department in a referral hospital in Tanzania, URTI even accounted for 12.6%. This is likely to be much higher in the primary care clinics. This has a huge economic cost estimated at over \$2 billion in the USA and £60 million in the United Kingdom (Marengo et al., 2017). This may account significantly to time lost from work and absenteeism from school (Worrall, 2011). Worrall (2011) in their Canadian article document that an adult has 4 to 6 colds in a year whilst the children have 6 to 8 attacks annually.

In the East African region in an article published in the East African newspaper, respiratory diseases including the common cold, asthma, cough and flu accounted for more than \$36.1 million in form of insurance claims with 40% of the payments being towards antibiotics (Business of medicine: Coughs, colds gobble up millions from insurers; published in the East African on the 11th February 2018 and accessed on 13th February 2019; <https://www.theeastafrican.co.ke/scienceandhealth/Business-of-medicine-respiratory-diseases/3073694-4299776-qy1yek/index.html>)

Reasons for seeking medical care for URTI

Several reasons on why patients seek a medical consultation have been obtained from studies conducted in the Western countries. These include a longer duration of the symptoms, the severity of the URTI, need for reassurance from the doctor, pressure from those they interact with to obtain care (McNulty et al., 2013). Of importance though in the Malaysian study conducted by Tan et al., 2015 symptoms for a lower respiratory tract infection did not contribute much to the reasons for seeking care.

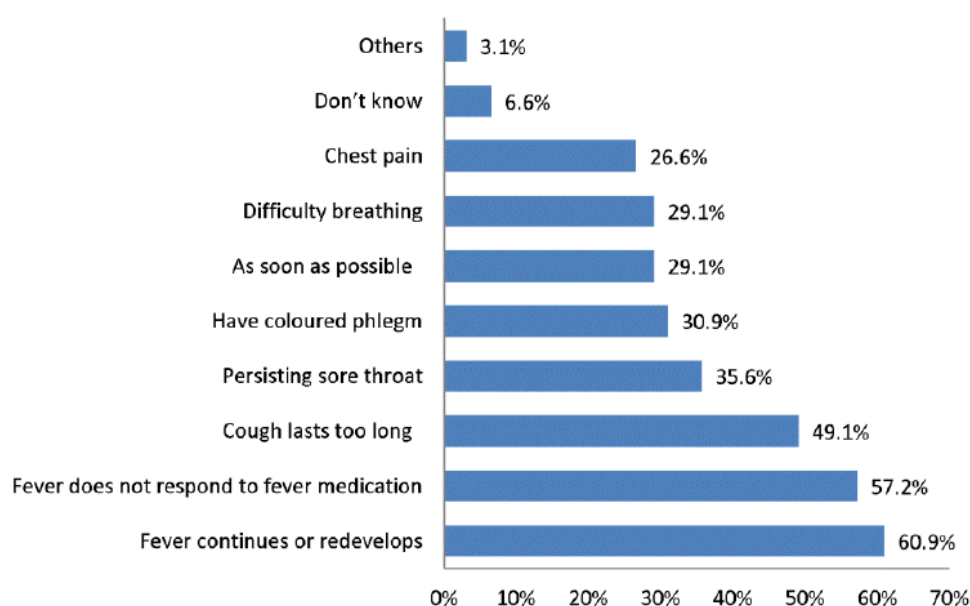


Figure from Tan et al., 2015 showing the symptoms that prompt patients to seek care

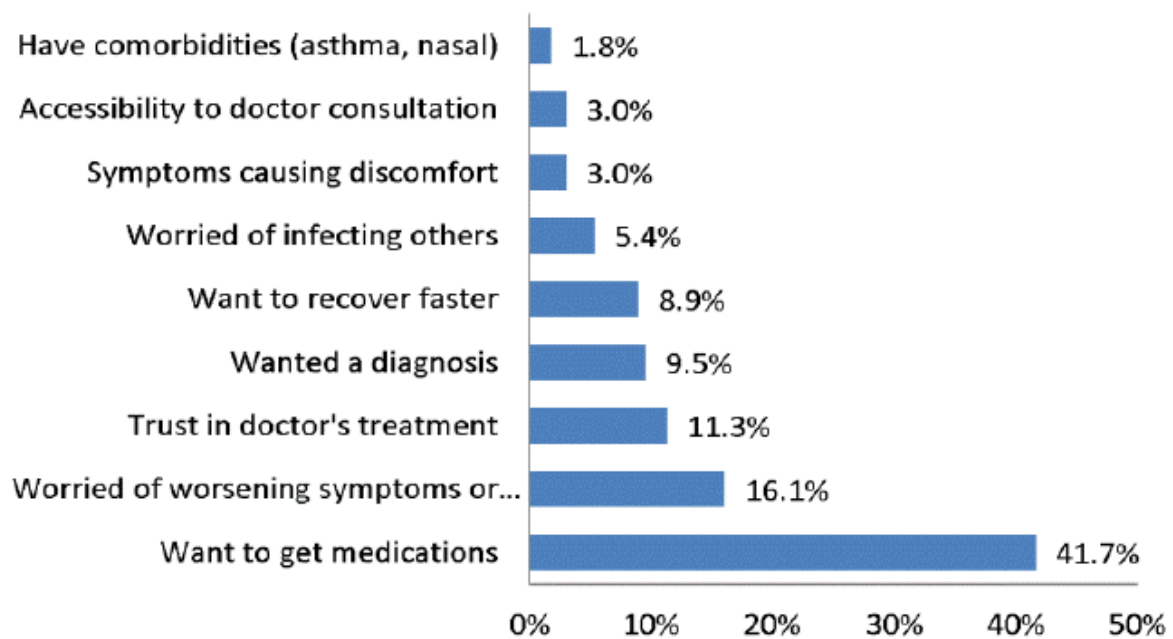


Figure from Tan et al., 2015 showing reasons for seeking doctor's consultation

These however may differ in the African context given the challenge of access to the primary health care services and the burden of lower respiratory tract infections that may occasionally be fatal if untreated. This was a similar finding in the study by Tan et al., 2015 in Malaysia who found that there was a higher proportion of patients with URTI who would seek a doctor's consultation.

Role of knowledge in reducing the visits due to common cold

In the study by Tan et al., 2015 they found out that the Chinese community in the area the health seeking behaviour for common cold was much less than the non-Chinese population due to their knowledge on the self- limiting nature of the illness and the role of home remedies.

From this one may infer that empowering the communities with such knowledge on the self-limiting nature of a common cold and the role of home remedies could aid in reducing the visits to health care facilities. Tan et al., 2015 recommended further studies on the effectiveness of educational interventions that are targeted towards the community to reduce the unnecessary visits to the health care facilities. Such interventions may focus on self- care during an episode of URTI and the red flags for example for LRTI for which a doctor consultation may be warranted.

Marengo et al., 2017 in their report on the meeting on Encuentro Latinoamericano de Infecciones Respiratorias Recurrentes (ELAIR) noted that given the limited options in the management of URTI of which 90% are of a viral cause, the emphasis should be placed mainly on preventive measures.

The evidence however on preventive measures has been found to be of poor quality (Allan and Arroll, 2014). The most supported interventions are physical in nature such as handwashing and use of zinc supplements.

Guidelines for the Management of URTI

At the primary health care facilities, the approach to care of the patients in the under 5 age group is guided by the **Integrated Management of Childhood Illnesses (IMCI)**. As regards to cough the approach is to rule out the danger signs and thereafter screen for pneumonia. In the absence of

pneumonia the cough is then classified as ‘cough and cold’ and managed conservatively with soothing remedies.

In the adults, currently available is a 2009 version of the **‘Clinical Guidelines for management and referral of common conditions at level 2 – 3: Primary Care’**. In these guidelines the management of URTI is limited to conservative approach avoiding cough and cold remedies including mucolytics, antihistamines and cough syrups. Moreover, the guideline advises the treatment to include analgesia and adequate fluid intake. It is equally recommended that the patient seek care if there is worsening of the symptoms. These guidelines are very similar to the NICE guidelines in the UK and of the American Association of Family Physicians. Allan and Arroll, 2014 in their review captured the role of honey as a non-traditional treatment.

Inappropriate Antibiotic Use and Difficulty in adhering to Guidelines

Holloway and van Dijk 2011, in their review on the rational use of antibiotics found out that ‘about half of all acute viral upper respiratory tract infection and viral diarrhoea cases receive antibiotics inappropriately’. This is further compounded by the finding by McNulty et al., (2013) that most of the patients with URTI who requested for an antibiotic received one. In their RTI Iceberg they illustrated that much fewer patients (around 5.3%) completed a course of antibiotics.

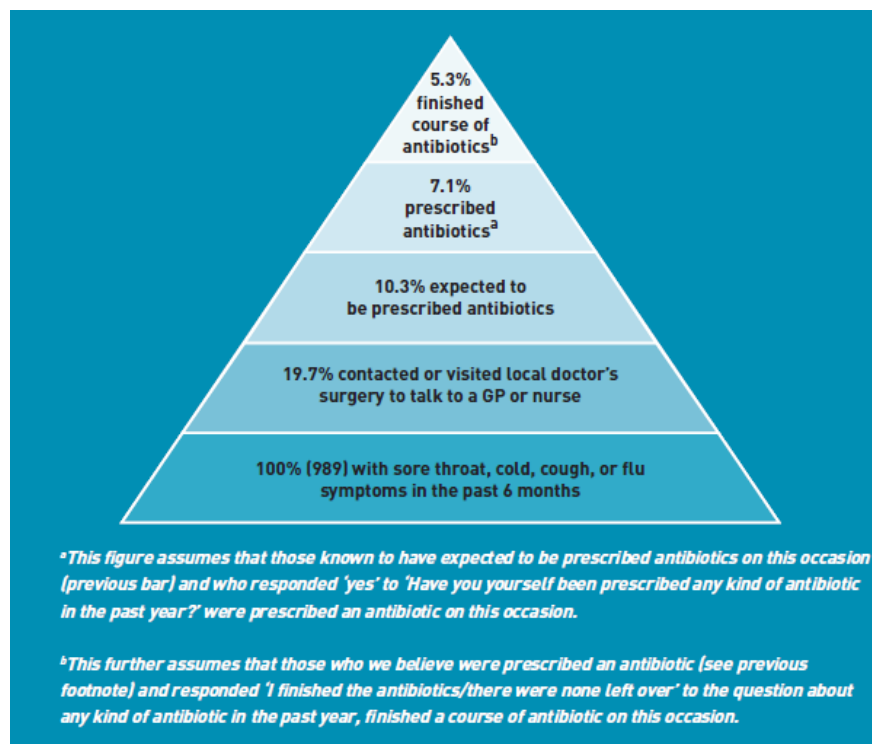


Figure showing the RTI Iceberg as captured in McNulty et al., 2013.

The improper use and overuse of antibiotics has contributed towards the development of antibiotic related infections and antibiotic resistance and this is further compounded by the slower rate of the making of newer antibiotic agents (Silverberg et al, 2017; Ohl and Luther, 2014). In addition to this, use of antibiotics is associated with the development of adverse events such as secondary infections, gastrointestinal complications such as Clostridium difficile infection, organ toxicities such as nephrotoxicity, psychiatric or neurologic disturbances (King et al., 2018). Further there is the effect on the commensal microbiome with a disturbance in the composition or complexity with the potential causative role in development of conditions such as juvenile arthritis, inflammatory bowel disease, celiac disease food allergies and diabetes (King et al 2018).

Some of the factors which have been associated with increased antibiotic use include doctor's submission to patient's expectations, unawareness amongst doctors and the patients on the seriousness of inappropriate antibiotic usage, patient and provider unawareness of antimicrobial resistance, and lack of appreciation regarding the seriousness of the threat posed by antimicrobial resistance (Sanchez et al., 2016; Drekonja et al 2014).

Interventions that have been shown to work

The CDC's core elements of outpatient antibiotic stewardship has education and expertise as one of the core elements (Sanchez et al., 2016). Education that seeks to influence the knowledge and prescribing behaviour of health personnel has been described as the cornerstone for antibiotic stewardship (Ohl and Luther, 2014). This education targets the reduction in use of antibiotics and the appropriate use of antibiotics- right indication, dosage, right drug, via correct route and for the right duration (Ohl and Luther, 2014).

Based on this the Family Medicine Residents chose to perform a medical educational intervention whose main objective was to increase adherence to the clinical guidelines.

TSANGATSINI DISPENSARY
MORBIDITY DATA FOR OVER 5YRS 2018

No	10 COMMON DISEASES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1.	Diarrhea diseases	29	34	25	26	32	22	40	24	45	49	37	31	384
2.	Malaria	209	77	24	38	123	92	82	0*	0*	10*	42	168	865
3.	Sexual transmitted infections	19	8	16	19	6	13	17	10	17	8	16	16	165
4.	U.T.is	37	24	21	30	37	23	36	40	36	51	35	35	405
5.	Bilharzia	10	10	9	3	12	8	14	8	8	7	11	5	105
6.	U.R.T.is	639	509	463	394	504	396	738	544	526	540	281	331	5,863
7.	Asthma	17	7	23	25	13	15	13	6	18	4	8	10	159
8.	Skin infections	66	51	67	134	107	90	155	88	75	103	103	75	991
9.	Dysentery	0	2	2	10	8	4	3	5	4	9	4	11	62
10.	Other injuries	40	28	22	13	35	27	47	43	29	67	30	23	404

*Meds out of stock during this period

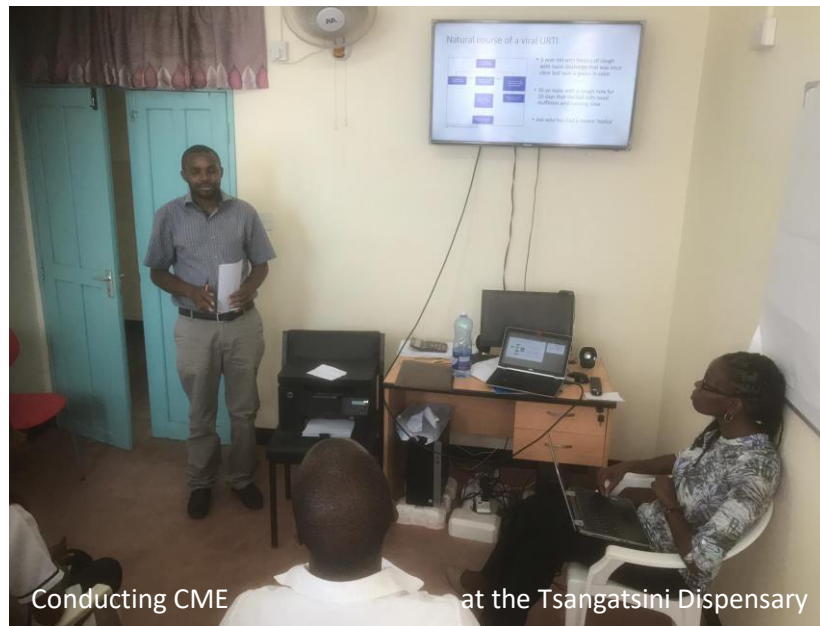
Intervention on the Management of the URTI

Method employed

Interactive participatory educational intervention on the prescribing health care staff on the adherence to the guidelines

Main Objective

To increase the adherence to the clinical guidelines in the management of URTI



Educational Intervention

A Continuous Medical Education (CME) session with the health facility staff of Gotani Health Centre and Tsangatsini dispensary was organized.

The content of the CME was as below

- Understanding the Natural course of a viral URTI
- Targeted history and physical exam in a patient with a URTI
- Criteria for dispensing Antibiotics in adults and paediatrics
- Choice of antibiotic
- Recommended Non antibiotic remedies
- Red flags in a URTI
- Harmful effects of inappropriate use of antibiotics
- Effective communication: How to reassure the patient that they don't need antibiotics

This was a 2 hour session which involved a set of 5 pre-test multiple choice questions that was followed with a case based educational group session with nurses and clinical officers that focussed on the guideline based management of upper respiratory tract infections in both adults and children and requirement of antibiotics. (See Appendix) . There were 8 case scenarios lasting a total of 60 minutes.

Participation was active and participants justified their answers using IMCI guidelines. The post-test questions were a repeat of the pre-test questions after the case scenarios.

For the full CME presentation kindly see Appendix 1.

Pre and post- test during the intervention (see appendix 1b)

To increase the educational impact of the intervention we composed 5 questions on the management of URTI using the Kenyan guidelines on URTI. We did a pre- and post-test in the intervention in both Tsangatsini and Gotani.

In Tsangatsini 10 staff members attended and 6 of them completed both pre- and post-test, in Gotani 5 staff members attended and 4 completed both.

In Tsangatsini in the pre-test we counted $8/(6 \times 5) = 26\%$ right answers and in the post-test $13/(6 \times 5) = 43\%$ right answers.

In Gotani in the pre-test we counted $7/(4 \times 5) = 35\%$ right answers and in the post-test $10/(4 \times 5) = 50\%$ right answers.

In the discussion we observed that people had knowledge of the guidelines, but had difficulty to adhere to the guidelines in daily practice.

Evaluation of the Intervention

A proposal to do monthly three months review on the adherence to the guidelines on the treatment of URTI was suggested. This would entail review of the daily registers where the summaries of the patient diagnosis and management is captured.

Discussion and reflections

The finding that most hospital visits in the primary care facilities is due to URTI is in keeping with the worldwide burden of URTI.

The major challenge in the setting of the COPC is the fear of bad outcomes due to pneumonia in the under 5 age group and of other illnesses that may present with a fever such as malaria.

From literature however there is a role of education on the natural course of a viral URTI and the utility of home remedies. This may help in lessening the burden of the high number of patients seeking care due to URTI.

Likewise there is room for an intervention targeted towards the community. This could enlist engagement of the community health volunteers and involve education on the natural course of a viral URTI, role of home remedies and the red flags upon which medical care should be sought.

Limitations

- i. The COPC exercise was conducted over a period of 6 weeks and was found too short to conduct evaluation of the educational intervention.
- ii. The COPC exercise did not touch on the burden of disease at the referral facilities and hence may lack a complete picture of the burden of URTI and possible complications
- iii. There was limited in collecting the antibiotic prescribing data at both Gotani Health Center and Tsangatsini dispensary.
- iv. Erroneous documentation of the antibiotic and morbidity data from the daily registers can result in inaccurate data
- v. Generalizability of the results- seasonal variation of upper respiratory tract infections can explain why the incidence of UTI is higher in some months than others.

Recommendations

- i. Multilevel intervention should be considered
 - Community level to reduce the number of patients who seek medical care for URTI
 - Facility level- several suggestions were put forward as an option in handling the high number of patients who present with URTI
 - Holding health talks in the morning prior to starting offering clinical service

- Involving the community health units in production of the various recommended home remedies as such as lemons and honey to easily avail them to patients
- government level both national and county in conjunction with the public health departments in providing a focus on highlighting this high burden of URTI and the risks of inappropriate use of antibiotics

Conclusion

The Family Medicine residents conducted a COPC exercise in two health facilities and their catchment area in Kayafungo ward in Kaloleni Sub County. This was aimed at achieving the objectives as captured before commencement. This entailed, firstly, learning the process of identifying health priorities in a community and coming up with an intervention. Secondly offering mentorship in the health facilities to enhance service delivery.

In this rotation the burden and management of URTI was identified as the health need and an educational intervention in the form of a CME was conducted. Evaluation of the impact of this intervention is proposed to be done monthly for 3 months.

Impact of the COPC

- i. to the community and the community health volunteers
 - a. the family medicine residents witnessed first hand the outcome of the collaboration between the two and continually commended and encouraged them.
 - b. The CHVs were empowered with more knowledge on malaria and URTI during the discussions held
- ii. To the health facility
 - a. Direct clinical care was offered by the family medicine residents to the patients and were available for consultation by the facility staff
 - b. The facility staff were engaged in a CME on the management of URTI
- iii. To the subcounty leadership
 - a. The COPC exercise has identified a potential area for action by the subcounty leadership as regards reducing the burden of the high number of patients seeking care for URTIs
 - b. The benefits of an effective intervention on the management of URTI will result in benefit to the ministry of health as regards the reduced number of antibiotics consumed at the health facilities and also furthering the Ministry's action plan on anti-microbial stewardship
 - c. The family medicine residents utilised data obtained from the HMIS and the daily registers at the health facilities. This highlights a positive outcome of the efforts in data collection and recording and also the potential that lies in the utilisation of this data to identify health need and assess progress of interventions.

Contribution to AQCESS project

- i. The family medicine residents witnessed the various activities conducted by AQCESS as regards
 - a. data surveillance using the various ministerial tools
 - b. strengthening of the community health units through training of CHVs
 - c. the surveillance of the parameters for the maternal neonatal and child health.

This emphasizes the opportunity that AQCESS can provide to the residents to experience both research and interaction with the community.

- ii. The success of the COPC project was largely contributed to by the goodwill of the community and subcounty leadership towards the Aga Khan University as a whole due to the impact that has been witnessed from the AQCESS project.

This success is a testament to the physical and relationship infrastructure that has been set up by the AQCESS project and the potential of leveraging this for activities that enhance the health of the population

- iii. The area of focus of the COPC project has potentially opened up room for further research activities that can further be explored through the collaboration between the family medicine department and the AQCESS project. This may include:
 - a. The economic burden on the public health system caused by the health seeking behaviour for URTI
 - b. Intervention to improve diagnostics for URTI
- iv. Community intervention aimed at changing the health seeking behaviour for URTI



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Appendices

Appendix 1:

Educational Intervention to address the inappropriate use of antibiotics in the management of URTI

Dr. Nelson Nyamu
Dr. Florence Mbatia
Dr. Pieter van Hombergh

Outline

- Natural course of a viral URTI
- Targeted history and physical exam
- Criteria for dispensing Antibiotics in adults and paediatrics
- Choice of antibiotic
- Non antibiotic remedies
- Red flags in a URTI
- Harmful effects of inappropriate use of Abs
- Reassuring symptoms
- How to reassure the patient that they don't need antibiotics

Case 1 :Natural course of a viral URTI

- A 5 year old child presents to the clinic with 3 days history of cough and runny nose . Mother had tried some OTC paracetamol before bringing him but the fever has persisted.
- O/e He is in FGC, febrile at 37.4 C, R.R 32 b/min.
ENT-Tonsils are hyperaemic, not enlarged . Nasal stuffiness.
RS-Chest is clear.

What is your diagnosis?
How would you manage?


Case : Red Flags in a URTI as per IMCI

- A 8 month old child presents with fever, cough, runny nose, and poor appetite for two days and difficulty in breathing.
- On Examination , the child is febrile at 37.6 C,R.R 52 b/min.He is not lethargic.


- What else in the history would you like to know about this child?
- What redflags would you look for in the physical examination ?

Case 2 Continued

- Further examination findings –
The child has no stridor, is not wheezing, and has no chest in drawing .
- What is your diagnosis?
- How would you manage this child?



ASSESS AND CLASSIFY THE SICK CHILD AGE 2 MONTHS UP TO 5 YEARS



Do a rapid appraisal of all visiting children.
ASK THE MOTHER WHAT THE CHILD'S PROBLEMS ARE. Determine if this is an initial or follow-up visit for this problem.
> If follow-up visit, use the follow-up instructions on pages 25-29. > If initial visit, assess the child as follows:

CHECK FOR GENERAL DANGER SIGNS	
ASK: Is the child able to drink or breastfeed? Does the child vomit everything? Has the child had convulsions during this illness? (if convulsing now see p. 14)	LOOK: Is the child: > lethargic or unconscious <div style="background-color: #ffcccc; padding: 5px; font-size: 0.8em;"> A child with any general danger sign requires urgent attention: complete the assessment, start pre-referral treatment and refer urgently. If the child is lethargic or unconscious give oxygen, test for low blood sugar then treat / prevent. </div>

ASSESS

CLASSIFY AS:

TREATMENT (Urgent pre-referral treatments are in bold)

THEN ASK ABOUT MAIN SYMPTOMS:
Does the child have cough or difficult breathing?

IF YES, ASK:

- For how long?

LOOK, LISTEN, FEEL:

- Count the breaths in one minute.
- Look for chest indrawing.
- Look and listen for stridor or wheeze.

CHILD MUST BE CALM

Classify
COUGH or
DIFFICULT
BREATHING

Any general danger sign or Chest indrawing or Stridor in calm child	SEVERE PNEUMONIA OR VERY SEVERE DISEASE	Give first dose of ceftriaxone IM (p. 15) Give first dose cotrimoxazole (p. 16) Give oxygen (p. 16) If stridor: give nebulised adrenaline and prednisone (p. 15) Test for low blood sugar, then treat or prevent (p. 14) Keep child warm, and refer URGENTLY
Fast breathing	PNEUMONIA	Give amoxicillin for 5 days (p. 10) If coughing for more than 14 days, consider TB (p. 9) Soothe the throat and relieve the cough (p. 14) Advise mother when to return immediately (p. 24) Follow-up in 2 days (p. 26)
No signs of pneumonia or very severe disease	COUGH OR COLD	If coughing for more than 14 days, consider TB (p. 9) Soothe the throat and relieve cough (p. 14) Advise mother when to return immediately (p. 24) Follow up in 5 days if not improving (p. 26)

AND IF WHEEZE, ASK:

- Has the child had a wheeze before this illness?
- Does the child frequently cough at night?
- Has the child had a wheeze for more than 7 days?
- Is the child on treatment for asthma at present?

FAST BREATHING

If the child is:	Fast breathing is:
2 months up to 12 months	50 or more breaths per minute
12 months up to 5 years	40 or more breaths per minute

AND IF
WHEEZE
Classify

Yes to any question	RECURRENT WHEEZE	Give salbutamol and prednisone if referring for a severe classification (p. 15) Give salbutamol via spacer for 5 days (p. 11) Give oral prednisone for 7 days (p. 11) Refer non-urgently for assessment
All other children with wheeze	WHEEZE (FIRST EPISODE)	Give salbutamol if referring for a severe classification (p. 14) Give salbutamol via spacer for 5 days (p. 11) Follow-up in 5 days if still wheezing (p. 26)

Case 3: Side Effects of Antibiotics

- A 16 year old boy got a sick note from school in order to be seen at the nearest health facility for left ear pain . He received treatment for a left ear infection for a few days after which he developed a generalized itchy dark raised rash but cannot recall the medication.
- What do you think could have caused the rash?
- What other side effects could be caused by these same drugs?

Antibiotics side effects

- Diarrhea
- Bloating
- Indigestion
- Skin rash
- Allergic reaction
- Fatigue
- Malaise



Case 5: Reassuring symptoms

- A 12 year old boy presents to the facility with sore-throat, fever , runny nose and cough for 3 days.
- O/e he is Febrile at 38.2 C. He has inflamed enlarged tonsils, but no exudates and no enlarged cervical lymph nodes.
- What is your diagnosis?
- How would you manage him?
- See Centors criteria

Table 3: The Centor Criteria for Bacterial Sore Throat
Symptoms: <ul style="list-style-type: none">• History of fever• Absence of cough
Signs: <ul style="list-style-type: none">• Presence of tonsillar exudate• Presence of tender anterior cervical lymphadenopathy or lymphadenitis
<i>If the person has three or four of these clinical features there is a 40–60% likelihood of bacterial infection. The absence of three or four of these signs suggests reduces the likelihood of a bacterial infection to around 20% and antibiotics treatment is unlikely to be necessary.</i>

Case 6: Patient Education and reassurance regarding URTIs

- Recently I treated a family of 6 children brought in by their mother. They all had presented with symptoms of common cold, and after having examined them I decided it was a viral URTI for all of them.
- The mother was not happy at my conclusion.
- What are you not happy about with this scenario?
- What do you think can be done to address this problem in the consultation with the patient?

Natural course of a viral URTI

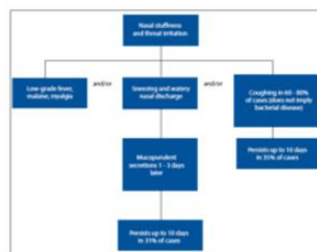


Fig. 1. Natural history of the common cold.

- 3 year old with history of cough with nasal discharge that was once clear but now is green in color
- 35 yo male with a cough now for 10 days that started with nasal stuffiness and running nose
- Ask who has had a severe 'mafua'

Targeted history and physical exam

- 28 year female old with runny nose for 3 days
- Fashner et al 2012
 - fever, cough, rhinorrhea, nasal congestion, sore throat, headache, and myalgias
- Modified Centor Criteria
 - Cough
 - Fever > 38
 - Swollen tender anterior cervical nodes
 - Tonsillar exudates or swelling
 - Age
 - 3 – 14
 - 15 – 44
 - >45

Targeted history and Physical Exam: <5

CHECK FOR GENERAL DANGER SIGNS

Ask:

- Is the child able to drink or breastfeed?
- Does the child vomit everything?
- Has the child had convulsions?

Look:

- See if the child is lethargic or unconscious.
- Is the child convulsing now?

Targeted history and Physical Exam: <5

<ul style="list-style-type: none"> Any general danger sign or Stridor in calm child. 	Pink: SEVERE PNEUMONIA OR VERY SEVERE DISEASE	<ul style="list-style-type: none"> Give first dose of an appropriate antibiotic Refer URGENTLY to hospital**
<ul style="list-style-type: none"> Chest indrawing or Fast breathing. 	Yellow: PNEUMONIA	<ul style="list-style-type: none"> Give oral Amoxicillin for 5 days*** If wheezing (or disappeared after rapidly acting bronchodilator) give an inhaled bronchodilator for 5 days**** If chest indrawing in HIV exposed/infected child, give first dose of amoxicillin and refer. Soothe the throat and relieve the cough with a safe remedy If coughing for more than 14 days or recurrent wheeze, refer for possible TB or asthma assessment Advise mother when to return immediately Follow-up in 3 days
<ul style="list-style-type: none"> No signs of pneumonia or very severe disease. 	Green: COUGH OR COLD	<ul style="list-style-type: none"> If wheezing (or disappeared after rapidly acting bronchodilator) give an inhaled bronchodilator for 5 days**** Soothe the throat and relieve the cough with a safe remedy If coughing for more than 14 days or recurrent wheezing, refer for possible TB or asthma assessment Advise mother when to return immediately Follow-up in 5 days if not improving

What other therapies proved to be useless other than antibiotics therapy

- 1.All cough mixtures
- 2.Corticosteroids
- 3.Vitamin C
- 4.Alternative medicine (dawa ya kienyeji)
- 5.Antihistamines

Choice of Antibiotic

- Use of the recommended first line drugs e. g amoxicillin, Septrin
- Weight based

CME QUESTIONS FOR EDUCATION ON URTIs

Dr. Florence Mbatia
Dr. Nelson Nyamu

Supervisor-Dr. Pieter Van Den Hombergh

Q1.

28 year old female presents with cough for 3 days with nasal stuffiness and generalised aches and malaise. She has HOB on and off. No urinary symptoms. O/E FGC; Temp 37.2degrees; enlarged tonsils but non tender cervical lymphadenopathy; normal throat . Management would be:

- A-No antibiotic and reassure and possibly give paracetamol
- B-Antibiotics
- C- Cetirizine for 5 days

Q2.

3 year old child presents with runny nose, cough and fever. By which of the symptoms would you be alarmed most?

- A-Respiratory Rate of > 50 b/min
- B-Respiratory Rate of > 40 b/min
- C-Fever of >38 c
- D-Heart Rate > 100 b/min
- E-wheezing

Q3.

2 year old child recently received antibiotics for a common cold in a private clinic and felt better two days following this treatment. The following is incorrect advice to give the mother regarding their use.

- A. Antibiotics resulted in the child's recovery from the said illness.
- B. Antibiotics can cause diarrhoea.
- C. Antibiotics can cause vomiting.
- D. Antibiotics can cause rash
- E. Antibiotics cause nausea.

Q4.

A child of 8 years walks in without his mother and without a sick note.

He has headache, sneezing and pain in the left ear and is already coughing for 3 days. Malaria is negative.

On examination, he is coughing much but the lungs are clear.

What would you prescribe?

- A. A short course of ampicillin (5 days)
- B. Paracetamol 250 mg x 2 daily.
- C. An antihistamine
- D. Drinking tea with lemon and honey.
- E. Reassure the boy about the cause of the infection

Q5.

A mother with a child comes in and she is worried, because the child is having his 5th cold this year. She has been waiting already 5 days and after this weekend the cold should have improved. The child is not having fever now but the mother says at night the child is hot. The neighbour recently lost a child to pneumonia. She insists on proper treatment.

What is your approach?

- A. Explain that the illness is innocent and prescribe some paracetamol
- B. Explore the fears and worries of the mother and ask what treatment she would want.
- C. Prescribe Cefuroxime to be sure that the child is not developing pneumonia.
- D. Do A and ask the mother to come back in 2 days.
- E. Do B and ask the mother to come back if the child is not recovering in 2 days

AKU Family Medicine Resident Rotation Programme under the AQCESS Project

Concept Note

AKU, Nairobi 16th December 2018

1. Background

The Canadian funded 'Access to Quality Care through Extending and Strengthening Health Systems' (AQCESS) project in Kenya is implemented in three subcounties: Kaloleni/Rabai (Kilifi County) and Boachoge Borabu (Kisii County). The four-year AQCESS initiative aims at accelerating improvements in health outcomes of women of reproductive age, and children under the age of five years through strengthening of local (county/subcounty/community) health care systems. In-country agencies responsible for project implementation include the Aga Khan Health Services Kenya (AKHSK) and the Aga Khan University (AKU). Grant management and compliance support is provided by Aga Khan Foundation East Africa (AKF EA) under the overall project executing agency Aga Khan Foundation Canada (AKFC).

The AQCESS project is currently in its 3rd year of project implementation which is carried out in agreement and close collaboration with the Ministry of Health (MOH) at county and subcounty levels. The project is in line with the Kenya Health Policy 2012-2030, the Constitution of Kenya 2010, the Vision 2030, and the Universal Health Coverage 2022 and Kenya's commitment to the Sustainable Development Goals (SDGs), primary health care (PHC) and the Kenya Community Health Strategy (CHS - 2006). A strong collaboration and work relationship has been established with the MOH at county, subcounty and health facility levels. All activities including infrastructure development, supportive supervision, training and mentorship of health workers, eLearning, community health volunteers (CHVs) dialogues and health days are implemented jointly with the MOH and other relevant government departments.

The AQCESS project includes a component that envisages short-term placement of family medicine (FM) residents enrolled in the four-year FM resident programme of the AKU in Nairobi. The AQCESS workplan of project year 3 (April 2018 to March 2019) and project year 4 (April 2019 to March 2020) foresees the placement of two respectively three FM residents at primary health care facilities in its project area. This component builds on AKU's resident/student rotation programme that was initiated five years ago under the AKU led Integrated Primary Health Care (IPHC) initiative to contribute to Community Oriented Primary Care (COPC) that can be defined as a continuous process by which primary health care is provided to a defined community on the basis of its assessed health needs. Family physicians have been identified by the Kenyan Ministry of Health (MoH) as highly skilled professionals who have the competencies to lead the community health team in provision of COPC. Therefore, both in their first and third year of training, FM residents at AKU learn to practice COPC in a defined rural community. In the most recent years, the residents/students were placed once per year at primary level health facilities (level 2 and 3) in Kaloleni Subcounty for six consecutive weeks each as part of their FM curriculum cycle. The residents are supervised by faculty members of AKU.

Several meetings between the AKU FM Department and the AQCESS project management took place to align the objectives of the Department and of AQCESS and conceptualize the rotation of the residents aiming at a placements twice during the remaining AQCESS project period at primary health care facilities within the project area. The following draft concept note presents the results of the

discussions and preliminary agreements about the objectives, processes and timelines of the FM residents' rotation initiative under AQCESS.

2. Overall approach

In line with the AQCESS annual workplan year 3 and year 4, two 3rd year and two 1st year residents will be posted for a six-week period each at selected primary health care facilities in Kaloleni / Rabai Subcounties. The AQCESS project will create the platform for assessing the added value of the AKU FM resident rotation programme to health system strengthening in the project area.

2.1 Objectives of the FM resident rotation component under the AQCESS Project in 2018 and 2019

In line with the expected AQCESS project outcomes and the objectives of the AKU FM Department, the **overall objective** of the FM resident rotation initiative under AQCESS can be formulated as follows:

- ➔ To contribute to strengthening local health care systems while simultaneously enhance the quality of AKU's medical education and research programme relevant to local context in Kenya

Objectives:

- (1) Enable the acquisition of the desired knowledge and skills of FM residents to practice Community Oriented Primary Care (COPC) and collaborate with the community and primary health teams in a rural setting.
- (2) Enhance capacities and skills of rural health facility staff in service management, patient management, quality of clinical care, implementation of health promotion and preventive activities.

Detailed description of expected outcomes for 1st and 3rd year residents see Terms of Reference (TOR) attached in Appendix 1.

2.2 Integration of the student rotation programme into the AQCESS project and the primary health care system

The AQCESS project has established strong collaboration and working relationships with the County and Subcounty key stakeholders (e.g. the County Executive Committee – Health, the County researcher and the Subcounty Health Management Team). All project activities including the FM resident rotation initiative are planned, implemented, monitored and evaluated jointly with these key stakeholders. The residents will be working directly under the lead of the AQCESS Project Field Manager and under the overall guidance of the national AQCESS project leadership team consisting of the AQCESS Kenya Country Manager at AKFEA and the Director of the AQCESS project at AKU in Nairobi. Being employed under the AKU FM Department, the Department will be responsible for the achievements of the expected academic outcomes. Led by the AQCESS Project Field Manager, the FM residents will work closely with and support the person in charge and the key staff of the health facility where s/he will be posted under the supervision of the Subcounty Health Management Team.

In principle, all activities of the residents in the project area will need to be approved by the Subcounty Health Management Team. The AQCESS Project Management will sign a specific **Letter of Intent (LOI)** with the Subcounty that includes and agrees upon the TOR of the residents and their academic supervisors. The activities of the residents at community level must be done under the guidance and lead of the AQCESS team to ensure that these activities are coordinated with the AQCESS project and in line with the government policy and regulations.

The AQCESS Project Field Manager will ensure that the Subcounty MOH partner is fully involved in the planning, implementation, and monitoring of the resident rotation programme in the project areas. The Subcounty Health Management Team will also be consulted for the selection of health facilities where the residents will be based. The Project Field Manager will arrange initial introductory and final debriefing meetings between the residents and the subcounty team and any other meeting that may be required during the rotation period.

The AQCESS Project Field Manager will arrange for coordination meetings both AKDN internally and with the MOH stakeholders. An introductory orientation meeting with the residents and their supervisors will be held with the AQCESS Team at the AKU Mombasa Research Office. Intermittent meetings will also be held at the field sites by the AQCESS Project Manager and her team to supervise, provide support, monitor and document the implementation of the rotation programme. A final debriefing session will be organized by the AQCESS Project Manager at the Mombasa Research Office at the completion of each rotation period.

Reporting structures

Each resident will report to a) the AQCESS Project Management, and b) the AKU FW Department. This will include an activity and a COPC report according to the 'Deliverables' specified in the attached TORs.

Location and selection of health facilities

Tsangetsini and Gotani health facilities

Supervision of the residents

The AQCESS Project Management (field and national level) will be responsible for overall supervision of the rotation activity for residents to ensure that the implementation of the rotation initiative is following the AQCESS annual workplans and that the outputs and immediate outcomes of the activity are met. The academic supervision of the residents will be provided by the AKU FM Department to ensure that the curriculum requirements are met and that the residents are adequately supported in line with the academic objectives.

In light of the community-focused primary health care approach, the residents will work closely with the community health volunteers (CHVs) and community health extension workers (CHEWs) trained and supervised by the AQCESS team and the MOH. The collaboration at community level will be led and guided by the AQCESS implementation team to ensure a maximum of coordination of project activities.

Financing of the Resident Rotation under AQCESS

The AQCESS Project provides a defined budget for the rotation activity of up to four residents in total in project Year 3 and Year 4. The available AQCESS budget will cover the technical and logistic support by the AQCESS project management team (national and field level); local accommodation, local transport costs, one return flight Nairobi-Mombasa for residents and two faculty supervisors; and meeting/conference activities and other project related costs.

Any additional needs that are not directly related to the project will not be covered by the AQCESS budget.

Logistics (accommodation and transport)

The accommodation and transport logistics directly related to the rotation initiative will be done by the AQCESS Project Administration at the AKU Mombasa Research Office.

The residents will be accommodated in an affordable hotel in Kaloleni Subcounty of acceptable standard. The supervisors will be accommodated in a medium priced hotel possibly in Mariakani (if available) or Mombasa. Local transport will be provided / respectively reimbursed to the residents and supervisors as required for project work.

Sustainability

As significant partners to the health care systems in East Africa, the AKDN agencies aim to contribute to strengthening local public health systems through partnership with the MOH particularly at devolved levels to increase access to equitable and quality care for specifically socio-economically marginalized target populations. One of the key initiatives in light of sustainable and affordable capacity building with a long term perspective is the well-established AKU student rotation programme that has been initiated in 2013/14 before the AQCESS project was launched. It is envisaged that this programme will be continued after completion of AQCESS covered by internal AKU/AKDN or other external funding. This programme is of mutual interest – and therefore sustainable – to both, the government partner to increase capacities in clinical care and research and the AKU to enrich its medical education programmes and create access to research field sites for faculty and students.

Through using the AQCESS Project as platform, AKU will be able to demonstrate significant added value of its resident rotation programme in terms of demonstrating improvement of crucial indicators. These indicators include improved quality of RMNCH health services at primary health care level, increased competencies of future family medicine physicians who will be crucial for provision of effective health care services and functioning future health care systems, creation of context relevant knowledge and evidence for health service delivery and system management, and ultimately contributing to improved health outcomes of the target population, primarily women of reproductive age and children under five.

Community-based AKU Family Medicine Training of 1st and 3rd Year Residents under the AKDN managed and implemented AQCESS Project in Kenya

1. Background

The AKU Family Medicine Department in Kenya has established a resident rotation programme to enhance its quality and context specific medical education and provide research opportunities for the residents participating in the programme. Simultaneously, the university aims at contributing to strengthening devolved public health care systems for improving access to equitable quality care particularly for the socio-economically marginalized populations.

The AQCESS project managed and implemented by Aga Khan Development Network (AKDN) agencies aims at increasing access to quality reproductive, maternal, newborn and child health (RMNCH) services in three selected Subcounties in Kenya: Kaloleni and Rabai in Kilifi County and Bomachoge Borabu in Kisii County. The AQCESS project will provide the opportunity for three 1st year residents and two 3rd year FM residents to acquire the desired knowledge and skills to practice Community Oriented Primary Care (COPC) and collaborate with the community and primary health teams in a rural setting. Simultaneously, the residents will share their knowledge and experience to build local capacities in health facility management and case management at primary health care and community levels.

2. Scope of rotating residents

2.1 Specific scope for 1st year residents

First-year residents will spend six consecutive weeks in the Kaloleni/ Rabai rural community to get acquainted with Community-based Family Medicine (CBFM). In that period they are expected to come up with a community diagnosis report.

Learning aims are:

- understand the COPC system in Kenya
- understand the collaboration/ interaction between COPC worker and the staff at the local health facilities (dispensary or health centre)
- interact with both the community as well as the trained staff of the rural health facility to identify health problems and to support the health facility staff in quality health care provision
- collect/ use data to identify and quantify and prioritise the health problems
- use epidemiology/ available data from MoH/ AQCESS project and other sources to prepare a community diagnosis report
- share the community diagnosis report with the community representatives and the health facility staff, the AQCESS teams and the Subcounty stakeholders.

2.2. Specific scope of work for 3rd year residents

Third-year residents will spend six consecutive weeks – ideally in the same rural community where they prepared the community diagnosis report in previous years. In that period they are expected to develop community leadership skills and among others find out if it is feasible to implement a project to address the identified community diagnosis. In addition, the residents will use their clinical expertise to provide clinical knowledge and mentorship to the facility staff in order to strengthen the health services and health promotion services.

Learning aims are:

- prioritise health problems with special attention for gender inequalities as well as more vulnerable groups (e.g. access issues for adolescents)
- identify suitable approaches at COPC level to improve health/ address health problems
- provide clinical knowledge and mentorship to the rural health facility staff in patient management, quality of clinical care, implementation of health promotion and preventive activities
- contribute expertise to the rural health facility staff in overall management of the health facility in order to ensure continuous quality of care and cost-effectiveness

2.3 Deliverables - residents

For AQCESS: The resident will be requested to submit a brief report to the AQCESS Project Management including a description of their activities during the rotation period, the major positive experiences made, the key challenges experienced and the major outcomes achieved. The AQCESS team would also appreciate if the report could be enriched with case stories, documentation of (positive and challenging) issues that might have occurred, and pictures (not compulsory). The residents will also give a verbal presentation at the debriefing meeting after completion of the rotation period.

For AKU FM Department Assessment: The residents are required to write a COPC project report in their first year in which they describe the community and present data from interviews and focus groups in a scientific way, explaining which key health problem was identified. A detailed literature review should provide the rationale for the proposed intervention. In their third year, residents are

required to complete the report and describe strategies for implementation based on a multidisciplinary approach as well as an evaluation of the health outcomes. The COPC report will be attached to the AQCESS Project report.

Group work for both residents' placement and the submission of joint reports of the group of two residents will be encouraged.

3. Scope of Supervisors

The supervision of the rotating residents will be done in two ways:

- a) Academic supervision will be under the responsibility of the AKU FM Department providing two expatriate doctors who are well experienced in Community Health and Family Medicine and with long-term experience in the region;
- b) Supervision of activities and monitoring of outputs and outcome will be provided by the AQCESS Project Team under the lead of the Project Field Manager.

3.1 Academic supervision

The two FM supervisors of the AKU FM Department will provide support to the residents for seven days each (in total 14 days) in Mombasa / Mariakani with short field visits to the project area. The FM supervisors will work in close collaboration and in line with the AQCESS project management and implementing teams. This will include (but not exclusively) an initial orientation session at the AKU Mombasa Research Office and a debriefing session after completion of the supervision tasks. The supervisors should also consult the AKU research team that is currently implementing the mentorship study and the mentors and clinical advisors of the Aga Khan Hospital Mombasa who are actively involved in AQCESS.

In general, the supervisors will aim at strengthening problem identification and prioritization, planning and implementation skills

- assist the resident in identifying health problems for a specific community
- assist the resident in discussing, developing and if feasible implementing interventions that are improving health and are cost-effective and are in a realistic scope
- assist the resident in developing an approach for monitoring and on-going evaluation of HC and COPC projects

Towards the residents:

- strengthen COPC awareness/ understanding importance of the residents
- assist the resident in identifying key roles for the FP in the support and strengthening of the COPC programme
- coach the residents in understanding the role of the FP in addressing health problems through COPC
- support the residents in supporting and supervising the HC/ dispensary staff in providing quality health services: clinical and prevention
- support the residents in developing a supportive supervision approach to the rural health facility staff in overall management
- support the residents to find or develop standards for identified problems for management procedures at health facility level if not yet available

Towards the community training programme:

- help to set up/ on-going updating a blue print for the rural COPC training (if not yet in place)
- help collecting or otherwise support the development of useful tools and standards for strengthening community health services at COPC and especially at rural health facility level

Deliverables:

The two supervisors will be requested to deliver a brief report to the AQCESS Management Team on the supervision activities carried out, the key results of the supervision and any positive experience or challenges experienced. In addition, the reports of the supervisors will include suggestions for academic supervision and faculty development of the FM faculty team.

3.2 Supervision and monitoring by the AQCESS management

The AQCESS Project Field Manager and her team will introduce the residents to the AQCESS Project and the government stakeholders. The AQCESS manager and her team (if possible from Aga Khan Hospital in Mombasa) will carry out periodical supervision field visits to provide support to the residents as needed and monitor the activities.

4. Collaboration with key stakeholders

The residents and academic supervisors will work closely with the AQCESS Project management and the implementing team including AKU faculty, AKHM doctors and nurses and the AKU Research Office in Mombasa.

The residents and supervisors will also coordinate and work closely with the public health care officials at health facility and health management levels based on the agreed MOU between the AQCESS project and the public health authorities. All activities at the community level must be done under the guidance of the AQCESS implementing team.