

**Clinical Officers: The Heart of Kenyan Healthcare**

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A registered Clinical Officer (CO) in the department of Pediatrics at A.I.C. Kijabe Mission Hospital since 2017, Akello Deborah Akinyi is currently in active pursuit of her higher diploma in Pediatric Emergency Medicine and Critical Care. In tandem with her educational goals, Ms. Akinyi works as a clinical research specialist at Seattle Children's Hospital focusing on methods to increase optimal outcomes and improve critical care management protocol for the division.

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After completing the three years of Diploma in Clinical Medicine training and a further year of internship, Joseph K. Choge then pursued a higher Diploma in Clinical Medicine (thus specializing in paediatrics). After practicing in this specialty for some years, he then did an Undergraduate Degree in Biological Sciences, a Master's and a PhD Degree in Parasitology. He then started his career as a University Lecturer in Clinical Medicine and has gradually risen to become the Head of the Department

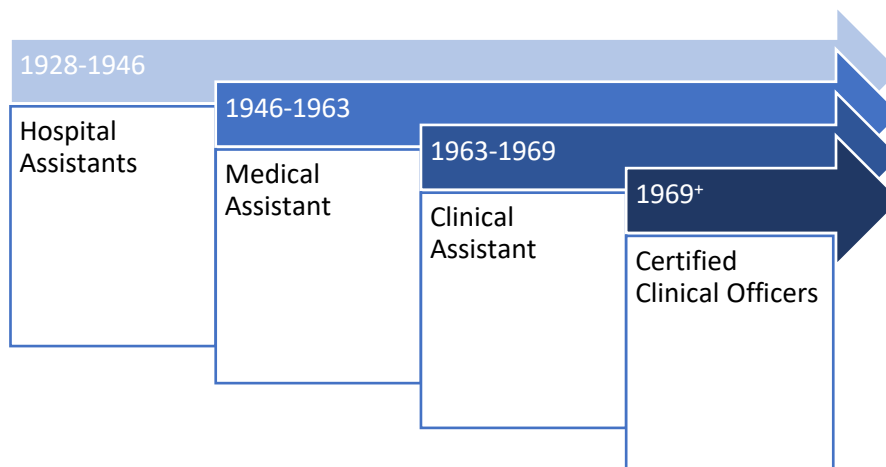
(Chair) of Clinical Medicine at the University of Kabianga, Kenya. He is also an external examiner in Moi, Jomo Kenyatta and Masinde Muliro Universities, respectively. He has served in various leadership positions within the Clinical Medicine Fraternity in Kenya. Initially, he served and gradually rose through the ranks to become the National Assistant Secretary - General of the Kenya Clinical Officers Association (KCOA), later joined the Clinical Officers Council (COC) and is currently serving as the Chairman of the Clinical Officers Council. He has participated in various research and has also co-authored some academic books

#### General Information:

The birth of Clinical Officers (CO) began in 1928 when Kenya, then occupied by the British, decided to train a select group of natives to practice medicine and provide care to the local population. Without official Kenyan doctors present inside its own borders, the goal was to fill the gaps in provision of healthcare to the constituents of the country. After acquiring independence from Great Britain in 1963, medical training in Kenya adopted a four-year medical school system recognized by the United States over the previously promoted six-year model in the United Kingdom. Funding arose from the African American Students Foundation (AASF) and was further supported by the Kennedy Airlift which led to hundreds of young Kenyan students getting scholarships to study in American institutions. Upon their return, Kenyan students joined the civil service helping support the newly independent country.

Three generations of clinicians arose from this process beginning with “Hospital Assistants” (HA), who after multiple name changes would finally become “Certified Clinical Officers” (CCO) in 1969 (See Figure1). These specialists were all certificate holders that maintained an ability to diagnose and treat patients in the healthcare system. An overlap in training of a second generation of practitioners began shortly after the initial name change of the first generation, which would produce diploma holders trained within Kenya’s border (Nakuru/Machakos) well into the 1980s. However, conflict in scope of practice between those holding certificates and those with diplomas ensued. Both generations longed for a unified career path with more in-depth training and advanced research skills that could further mitigate the concerns with doctor shortages. It was at this time, approaching the year 1970, that a third generation uniformly called “Clinical Officers” (CO) was born. This title continues to be shared among all of those trained to this date.

Figure 1. The name changes of the first generation of Clinical Officers.



Additionally, the University of Nairobi split from the University of East Africa in the same year, establishing itself as the first medical university in Kenya. Two statutory bodies emerged: the Kenya Medical Practitioners and Dentists Board (1978) and the Clinical Officers Council (COC, 1989). The first having jurisdiction over medical officers and physicians and the second over COs. As the profession advanced higher diplomas in specialty areas like pediatrics, ophthalmology and more were created to replace residencies; and in 2006 the Bachelor of Science in Clinical Medicine and Surgery (BSc) was introduced (See Table 1).

Table 1. 'Active practising clinicians holding various qualifications (Degrees, Higher Diploma or Diploma) in Clinical Medicine) in relationship to Kenyan Population as of 2019'.

Category	Gender		Total	Clinician: Population Ratio
	Male	Female		
BSc Clinical Medicine	201	139	6	1: 117,647
Other BSc Degree	68	112	180	1: 222,223
Higher Diploma	1,295	673	1,968	1: 20,326
Diploma	11,409	7,240	18,649	1: 2,145
<b>TOTALS</b>	<b>12,973</b>	<b>8,164</b>	<b>21,137</b>	<b>1: 1,893</b>

\*Permission for use has been granted by the COC

In December 2018, President Uhuru Kenyatta declared Universal Health Care (UHC) to be a national priority in Kenya as part of the "Big Four Agenda" for sustainable development. Prior to this time, there were approximately 8,600 clinical officers and 7,100 medical officers. With the higher need for UHC within its borders, Kenya found themselves in a predicament to keep up with the patient demands. Acknowledging this, President Kenyatta advocated making strategic investments in health to ensure that all residents of Kenya could access essential health services by 2022. In conjunction

with the changes in policy, matriculation caps for the two primary training programs--Kenya Medical Training College (KMTC) and St. Mary's School of Clinical Medicine--as well as other alternative private institutions were increased. Now nearly 35 programs exist producing about 2,000 graduates per year. By 2019, about 800 BSc COs were already qualified and registered with the COC.

However, despite having more medical training schools/colleges, Kenya continues to fall short on meeting the population needs. Out of pocket expenses per person still account for around 26.1% of total health spending nationally, which has implications for the willingness of patients to utilize services or seek care, particularly for what is perceived to be more complex issues like cancer. As 2020 ended, approximately 23,000 COs were practicing in Kenya. The question is whether this will be enough.

Entry Criteria:

Anyone seeking entry into any of the clinical medicine programs must have passed the Kenya Certificate of Secondary Education (KCSE). Those who trained prior to when the KCSE was offered, wishing to enter into any further program, are required to have their training certificate equated prior to consideration for matriculation by the Kenya National Examinations Council (KNEC). This organization ensures that all necessary secondary education has been completed with appropriate passing grades and that each student applying begins with a similar, focused educational background. International students who intend to train in Kenya must also go through this process, supplying the KNEC with their equivalent documentation provided by the programs in their home country for review. Once granted permission, the KNEC will allow the applicant (assuming all other prerequisites are complete) to sit for the entrance exam into the program of choice (See Table 2).

Table 2. Condensed list of requirements needed to apply and be matriculated into the various programs offered in Kenya.

Program	Entry Requirements
Diploma Clinical Medicine, Surgery & Community Health	<ul style="list-style-type: none"> <li>● Kenya Certificate of Secondary Education (KCSE)               <ul style="list-style-type: none"> <li>○ Mean grade of C</li> </ul> </li> <li>● At least a C or higher in Biology, English/Kiswahili</li> <li>● At least a C- in any two other sciences (Physics, Physical Science, Chemistry, Mathematics)</li> </ul>
Bachelor's in Clinical Medicine and Surgery	<ul style="list-style-type: none"> <li>● Diploma in Clinical Medicine/Surgery or Community Health</li> </ul> <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> <li>● Registration Certificate from the Clinical Officer's Council</li> </ul> <p style="text-align: center;">OR</p>

	<ul style="list-style-type: none"> <li>Higher Diploma in Clinical Medicine (<i>Anesthesia, ENT, Pediatrics, Lung/Skin, Orthopedics, Reproductive Health, Epidemiology, Dermato-venerology, Ophthalmology, and Cataract Surgery</i>)</li> </ul>
Master's Program	<ul style="list-style-type: none"> <li>BSc in Clinical Medicine and Community Health</li> </ul> <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> <li>Degree in other health related fields</li> </ul> <p style="text-align: center;">AND</p> <ul style="list-style-type: none"> <li>Other qualifications as may be approved by the permanent Secretary Ministry of State for public service</li> </ul>
Post Graduate Program (50-60 students at a time)	<ul style="list-style-type: none"> <li>BSc in Clinical Medicine and Community Health</li> </ul> <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> <li>Master's Degree completion</li> </ul> <p style="text-align: center;">AND</p> <ul style="list-style-type: none"> <li>A few years of practice time established by the accrediting body</li> </ul>

Education:

Diploma CO training encompasses three years of full-time medical training with supervised clinical practice and an internship at an accredited medical training institution (See Table 3), while undergraduate CO training takes four years (for those directly selected competitively by Government - accredited selection Boards (KUCCPS in consultation with CUE), after meeting minimum qualification grades in KCSE. An undergraduate medical class is taught during the junior year clerkship (end of 3rd year) and senior clerkship (4th year). Concepts of clinical evaluation and care are integrated into both the didactic and clinical sessions; and specialty courses such as dental, neurosurgery, pharmacy, and nursing are offered as electives.

After practising for a short time, Diploma graduates can move on to pursue another 18 months to 2 year or more residency program (Higher Diploma) in their preferred area of specialization. The approved specializations currently include: anaesthesia, paediatrics, reproductive health, orthopaedics and traumatology, dermatology, among a growing list of others. Other Diploma graduates may also opt to upgrade to Bachelor of Science in Clinical Medicine (in which case they will complete after three years). After successfully completing undergraduate degrees, others may proceed to post-graduate (MSc and PhD programs, which include mandatory postgraduate dissertation that involves extensive research, primarily on Human Immunodeficiency Virus (HIV) or other communicable diseases that are indigenous to the region.

Currently nurses, public health officers and laboratory health workers in Kenya have their own unique separate training that typically begin from Diploma to Degree levels, respectively. However, these cadres have clear training curricula and job descriptions and are regulated by their own Councils, independent of the COC. Each of these professions work independently and in such a way that they are complimentary and do not necessarily conflict with that for Clinical Officers, Doctors (Medical Officers) or other health-related professionals. Irrespective of the health cadre, it takes at least eight years of specialized medical training and experience to graduate with a post-basic qualification for these providers.

Table 3. Overview of the duration of each degree offered in Kenya.

Program	Didactic	Internship	Supervision	Total Duration
Diploma	3 years	1 year	3 years	7 years 13,240 hours
BSc	4 years	1 year	3 years	8 years 15,040 hours
<b>ADVANCEMENT OPTIONS AFTER COMPLETING THE ABOVE</b>				
Higher Diploma	2 years <b>OR</b> 18mo <b>OR</b> 2,700 hours			
MSc	2 years <b>OR</b> 22.5mo <b>OR</b> 3,600 hours			
PhD	4 years <b>OR</b> 45mo <b>OR</b> 7,200 hours			

#### Financing Education:

The Kenyan Universities and Colleges Central Placement Service (KUCCPS) in consultation with the Commission for Universities Education (CUE) have utilized a standardized method called cluster points to determine for whom the Government would be willing to sponsor. The maximum cluster points for each course is twelve, assuming a student scores a grade 'A'; and the maximum points for any cluster (typically comprising four subjects) is 48 points. The total points a student receives qualifies them for admission into the various degree training programs. Those who meet the minimum requirement, as delegated by the KUCCPS and CUE, will receive full sponsorship/financing of their education for a period of four years from the Government of Kenya. Admission criteria remains competitive and purely based upon merit.

Alternatively, those who meet the minimum qualifications but are left out of the merited selection process (not included in the group with highest cluster points) are allowed to pursue the programs in various training institutions as self-sponsored candidates, responsible for funding their own education. Those pursuing diploma programs, the MSc, or PhD are entirely responsible for paying for their own education, provided they have been accredited by the COC. Students who cannot afford the education have to solicit and acquire the cost of tuition from elsewhere, provided they meet the minimum

qualifications to pursue their various programs, as set out by the respective training institutions and the COC.

#### Accrediting/Regulatory Bodies:

The ACT of Parliament in 1988 previously formed the basis for regulation and training of COs; however, upon the amendment passed in 2017--the Health Act (No. 20)--the original act was repealed. Now the MOH through the COC regulates training and practice of COs. They provide accreditation to training institutions and approve all course syllabi for each program. The Ministry of Education (MOE) in consultation with the CUE and KUCCPS collaborate to set the minimum cluster points for entry into programs and are in control of regulating admissions criteria. The CUE further accredits degree programs by performing institutional inspections to verify training facilities meet and adhere to all requirements set forth by the mentioned parties.

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#### Affiliate Groups:

COs are able to enroll in the Kenya Union of Clinical Officers (KUCO) . Membership is open to all COs who are registered or licensed under Clinical Officers Act of 2017 to practice medicine in Kenya as well

as students admitted in medical school to study clinical medicine as associate members. If enrolled, members are assured of legal protection for any political issues such as improved working conditions. This is considered a legally registered union and is recognized by the MOH, MOE (ministry of Education), and MOL (ministry of labor).

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The Kenya Clinical Officers' Association was established in 1981 to promote the welfare of members and the professional development of COs through training and advocacy. The association as of 2020 has a membership of over 7000, with 3000 originating from the public sector and 4000 from private. Membership is open to holders of a diploma or degree in clinical medicine and surgery who are registered with the COC and licensed to practice medicine in Kenya. The KCOA is the decision-making body which administers all administrative and governance affairs of the Association in accordance with the Kenyan Constitution.

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#### Professional Licensure:

Upon enrollment into a program and payment of the associated admission fees, all students are required to be indexed by the institution within 30 days of beginning their coursework. Indexing involves a specific number assignment to each student, which allows the COC to track the trainees' progress through the program. Upon completion of the program, each student must provide this index number to the COC in order to proceed with the registration and licensing process. Failure to do so results in denial of licensure. The COC is responsible for licensing all COs who complete training.

Registration by the COC entitles one to render medical services in any public or private medical institution. For those who have been in practice for more than ten years or are completing advanced degrees, registration with the COC permits the practice of medicine independently as a private practitioner. Registration also qualifies one to join and participate in the affairs of the Kenya Clinical



Officers Association (KCOA), including its annual KCOA Scientific Conference, and the Kenya Union of Clinical Officers (KUCO). International students who complete any level of training in Kenya are obliged to register both with the COC *and* with the relevant medical board in their home country.

Once the COC has received all required documentation of completion of a program for registration and licensure, the new graduate must pass a pre-internship examination. If the trainee fails, they must wait six months before sitting again for the examination. The trainee must pass by the third attempt or the COC reserves the right to suggest a student be withdrawn from the program or move for alternative action as per the Health Act. Upon receipt of the passing grade, the COC will provide the practitioner with a license for one year (their internship year). Supervising physicians during the internship training process will sign a logbook provided to them by the COC for each candidate. Presentation of the logbook, personal index number, and payment of a fee completes the COC requirements and grants the trainee the ability to practice as a CO in the hospitals/healthcare system. No further examination outside of the pre-internship exam is required to practice.

#### Scope of Practice:

COs are mid-level healthcare workers who provide clinical services at the primary health care level. They observe, interview, and examine both sick and healthy individuals to determine causes of illness and document overall health. They apply relevant pathological, radiological, psychiatric, and community health techniques to promote improved overall health within the communities of Kenya. All COs are able to perform simple procedures and classify diseases/conditions to establish a provisional or final diagnosis for which they can prescribe medicinal treatment and initiate/terminate management therapies utilizing their knowledge and skills. All are qualified to interpret medical tests, perform routine medical and surgical procedures, and refer to other practitioners or managed health systems for advanced care. Those continuing on to more specialized degrees can provide care at higher levels under the three-tier healthcare system whereby Kenya's top providers, such as Doctors and Community Healthcare workers from Health Centers practice.

Per the revised scheme of clinical service requirements for COs as of April 2010, registered COs are additionally responsible to generate credible health data and information on the population at large and cascade this data to both county and national governments, government agencies and third parties via reporting tools supplied by the MOH. This data has proven useful to capture data on disease outbreaks, physical injuries and deformities, mental illness, drug resistance, disability, nutritional disorders, births/deaths, and other existing conditions.

COs maintain prescribing rights; however, at this time, there is no publicly available listing as to what medications are included on this list.

After 10 years of service, COs become "Senior Clinical Officers", qualifying them for a license to practice under their name as a private medical practitioner.

#### Maintaining Role:

In order to continue to provide care in the clinical setting, this license must be renewed every three years. Upon application for renewal, COs must demonstrate that they have completed 30 continuous professional development (CPD) credits spanning across the various fields of medicine, public health, and science. Failure to comply results in rejection of license renewal; however, those who remain licensed continue to be recognized for their service by the government through the COC, MOH, as well as other NGOs.

#### Job Opportunities:

Approx. 6,000 COs can be employed in any given year by the government in the public sector. The rest are either in Non-government Organizations (NGO), private practice, or remain unemployed.

#### References

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2. Approved Institutions for MBChB and BDS Training. Kenya Medical Practitioners and Dentists Council. <http://medicalboard.co.ke/functions/approved-training-institutions/>. Accessed March 21, 2021.