

Findings from a Survey of an Uncategorized Cadre of Clinicians in 46 Countries – Increasing Access to Medical Care with a Focus on Regional Needs Since the 17th Century

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TABLE A. African Accelerated Medically Trained Clinicians

Country	Title Established	Education/Training	Scope	Regulation	Numbers
Angola	Clinical Officer	– secondary school – Education– 3 yrs. (Emigration of Drs 71% based on early 2000 data)	Medicine minor surgery obstetrics (no CS) Work in rural and urban areas	Information not available	Info not available on # CO in Angola MD ratio .011/10,000 Population: 19 million
Burkina Faso	Clinical Officer – 1942 Also : – attaché's desanté' Medical assistant – Attaché de santé' en chirurgie – 1965	Secondary school – 3 years Medical officers can upgrade to CO's with 6 month curriculum in emergency medicine	Medicine, minor surgery – General practitioners – Emergency obstetrics at district hospital – Can deal with obstructive labor – C sections – Work in urban and rural areas	Organization – the Association Health Attaché in surgery	1241 Clinical Officers as of March 2015 MD ratio .0047/10,000 Population: 18 million
Cabo Verde	Health Officer per literature review– per WHO and MOH in Cabo Verde these do not exist – no other info available				MD ratio 2010 .3/1,000 Population: 538,535
Ethiopia	Health Officer 1954 discontinued in 1974 started again 2004	4 years According to Health Sector Development Program: accelerated program of Health Officer training (generic and upgrading) began in 2005.	95% practice in primary Health care unit (District HC) both in rural and urban Manage health center & district health offices	Directorate of Health Facilities and Professionals Licensing under Health and Health Related Services and Products Regulation Agency	Health Officers 2008 > 900 had graduated 3,168 were under training– per WHO Health Sector Development program MD ratio 2009 .025 /1000 Population: 96 mil

TABLE A. African Accelerated Medically Trained Clinicians – continued

Country	Title Established	Education/Training	Scope	Regulation	Numbers
Gabon	Assistant Medical Officer 1995	Clinicians trained in Togo—no training institution in Gabon	Primary Care— rural and urban health centers — first level of health system	Ministry of Health	14 Assistant Medical April 2015 MD ratio 2004 0.29/1,000 Population: 1.67 million
Ghana	Medical Assistant 1969	Direct entry: 4 years Post RN 3 yrs: 18 months training Bachelors: 4 years 7 training programs	Primary Care: rural/under-served areas 80– 120 patients/day Specialty training in psychiatry, dermatology post graduate	Ghana Medical and Dental Council regulatory body Physician Assistant (PA) umbrella of PA– Medical =Medical Assistant PA Dental =Community Oral Health Officer PA– Anesthesia= Nurse Anesthetist	2,500 in service 72% PA– Medical MD ratio 2010 .1/1,000 Population: 25.7 million
Guinea– Bissau	Clinical Officer Unclear on year of profession establishment	Secondary school finishers 3 years pre– service/ 1 year internship	Medicine – rural and urban areas	Information not available on regulation	Information not available on # CO in Guinea– Bissau MD ratio 0.07/1,000 (2009) Population: 1.7 million (2014)
Kenya	Clinical Officer 1928 Originally: hospital assistants, clinical assistants, medical assistants	2 levels: *3 yr. diploma in clinical medicine and surgery, *4 yr. bachelor of clinical medicine and community health. mandatory 1– 1.5 years internship – 18 Diploma 6 BSc Clinical Medicine	Primary Care, pediatrics, reproductive health (c–sections), ophthalmology, orthopedics	The training, registration, and licensing is regulated by the Clinical Officers Council Registered licensed as independent practitioners.	Over 15, 000 have been registered by Clinical Officer Council MD ratio 2011 .2/1,000 Population: 45 million
Liberia	Physician Assistant 1960's	Apply post high school. 3 years didactic and clinical training 3 programs – but all on hold because of ebola epidemic	Primary care	Ministry of Health and Social Welfare	Liberian MD : 50– 150 total PA= 1,000 approx Population: 4 million
Malawi	Medical assistant 1890's	Medical Assistant: 2 years formal Medical assistants can upgrade to CO's after completing a 2 year bridging course 18– month training program in orthopedic, ophthalmology or anesthesia CO programs.	Primary Care	MOH administrative control only	MA 1,262 MD ratio 2009 .019/1,000 Population: 17 million

TABLE A. African Accelerated Medically Trained Clinicians – continued

Country	Title Established	Education/Training	Scope	Regulation	Numbers
	Clinical Officer 1979	CO – 3 year training—post MA extensive surgical focus	surgical skills— hernia repair, abdominal surgeries and cesarean sections tertiary and district hospitals.	MOH administrative control only	2011– 2016 Malawi Health Sector strategic plan CO 2,726
Mozambique	Tecnicos de Medicina (Clinical Officers) 1975 Tecnicos de Cirurgia 1984	TM: prior RN, MW TC: 3– 2.5 years of pre– service, 1– 1.5 year internship	TM: Primary care Rural and Urban care TC: Rural hospitals Surgery/obstetric/ trauma care (are the backbone of emergency surgical care – 90% 57	Ministry of Health Mozambique regulates health workers	Information not available on # TM, TC in Mozambique MD ratio 2008 0.03/1,000 Population: 25 million (2015)
Mauritius	Community Health Care Officer	Secondary school finishers 3 years pre– service/ 1 year internship	Rural clinical care/ obstetrics but no c– sections	Information not available on regulation	Information not available on # CHCO in Mauritius MD ratio 2010 .1/1,000 Population: 1.3 million
Rwanda	Physician Assistant 1996	4 years Bachelor of Science in Clinical Medicine and Community health	Primary Care & Manage health centers	Rwanda Allied Health Professional Council and the Ministry of Health.	176 Physician Assistants December 2014 MD ratio 2010 .1/1,000 Population: 12 million
Senegal	Health Officer Unclear on year established – the National School of Social and Health Development started in 1992 to consolidate schools, paramedical and social to better interate and coordinate these professionals	National School of Social and Health Development attached to the MOH. State diploma Training in 18 Sections through 3 depts: Dept of Basic Studies in Health Sciences Dept of Special Studies in Health Sciences Dept of Studies in Social Science	Primary care – rural and urban centers and district hospitals	Director of Human Resources within the Ministry of Health and Social Action oversees regulation	953 March 2015 HRH MOH Senegal MD ratio 2010 .1/1,000 Population: 13.6 million
Sierra Leone	Community Health Officer: 1980 Originally Medical Assistant	3 years plan to upgrade to Bachelor of Science (BSc)	Primary Care as well as management of Community Health Centers Surgical and mental health CHO being piloted	Draft CHO licensing act for CHOs recently submitted to Parliament for approval All CHOs appointed into Primary Health Units under Ministry of Health and Sanitation.	500 CHOs MD ratio 2010 0.02/1,000 Population 2015 5.7 million

TABLE A. African Accelerated Medically Trained Clinicians – continued

Country	Title Established	Education/Training	Scope	Regulation	Numbers
	Clinical Officer	4 years Bachelor of Clinical Medicine – shorter courses for those w' diploma of nursing/ Community Health Sciences	At District Hospital : provide in– patient and surgical care vs. primary health	Pending further information from MOH	Training curriculum and facility developed – pending matriculation of first class. Currently roll– out on hold as Makeni facility converted into an Ebola Holding Unit as part of national Ebola response plan.
South Africa	Clinical Associate 2008	3 years with a BCMP earned 3 programs	Primarily in district health centers, scope of practice under the delegation of the physician	Medical and Dental Board of the Health Professions Council of SA registers qualified graduates	2015: 516 CA MD ratio 2013 .8/1,000 Population: 48 million
Republic of Southern Sudan	Clinical Officer 1998 Govt helps recruit students from rural areas	3 years internship after the program	Primary care perform minor surgical procedures 99% end up working in rural health centers	COs are regulated by the MOH, Republic of South Sudan.	Clinical Officers – – 475 December 2014 MD ratio – not available = 189 total in– country MOH Strategic Plan 2011– 2015 Population: 11.5 million
Tanzania	Clinical officer (CO) Associate Medical Officer (AMO) 1960's	CO– 3 year training preparing clinicians to work in rural areas Assistant Medical Officer –CO + 2 years advanced training in curative and preventative medicine	AMO usually found in district hospitals, health centers, training institutions and PHC programs.	Tanganyika Medical council under the Medical Practitioners and Dentists Ordinance of 1968 Cap 409.	940 medical officers, 1400 assistant medical officers, 6900 clinical officers 2004 MD ratio 2006 0.01/1,000 Population 2014: 49.6 million
Togo	Medical Assistant 1972 Togo Ministry of Health has requested specialization as seen in scope column	3 year training – post secondary education	Rural health centers; urban health centers and hospitals – initially all primary care – now with specialties: – Surgical assistant – Radiology Assistant – Hygiene and Environmental Health Assistant – Ophthalmology assistant – Laboratory assistant	Association des Assistants Medicaux du Togo	1390 Medical Assistants in December 2014 MD ratio 2010 .1/1,000 Population: 7 million

TABLE A. African Accelerated Medically Trained Clinicians – continued

Country	Title Established	Education/Training	Scope	Regulation	Numbers
Uganda	Clinical Officer Started after World War 1 as Medical Assistant – 1918 In 1996, name changed to Clinical Officer	3 yr. post secondary education. – Graduate with a diploma in clinical medicine and community health.	Primary healthcare Specialty Psychiatry and Ophthalmology	Allied Health Professionals Council and Ministry of Education	Total enrollment per year 2,100 MD ratio 2010 .1/1,000 Population: 35.9 million
Zambia	Associate Clinician 1936 Medical Licentiate 1989	Assoc. Clinician: 3– 4 yrs post secondary Med. Licentiate: 3 yrs post AC or 4 post secondary 1 public, 7 private training programs	Associate Clinician: rural areas Primary Care Medical Licentiate: 90% rural areas Level 1 referral district hospitals Medical care Pediatric care Surgery Comp. Obstetric Emergency Care Specialized Clinical Officers provide: Anesthesia Ophthalmology Dermatology/venereology Psychiatry	Health Professions Council of Zambia registers and regulates their practice	2,000 in service 300 graduates/year currently MD ratio 2010 .1/1,000 Population: 14.6 million

MD ratio: World Bank Country ///Population : The World Factbook (CIA) – est July 2014

TABLE B. Asian Accelerated Medically Trained Clinicians

Country	Title Established	Education/Training	Scope	Regulation	Numbers
Afghanistan	Physician Assistant 2012	24 months of training at Kabul National Military Hospital.	To work under the supervision of a physician	Pending	145 students (5 females) MD .234/1,000 Population: 31 million
Bangladesh	Medical Assistant 1979 Renamed: Sub-Assistant Community Medical Officer 2015	Medical Assistant Training Schools (MATS) – 3 year training didactic & clinical 8 MATS– government run 134 MATS private sector	Rural health centers; union health and family welfare centers	Bangladesh Medical and Dental Council	Annual production capacity 9,241 (2013) MD ratio 2011 .4/1,000 Population: 166 million
India	Physician Assistant 1992	3– 4 yr bachelor training 2– 3 yr post graduate training 10 University programs in conjunction with 47 institutes	Originally cardiology/ cardiac surgery as of 2004 general medicine & other specialty focus.	Indian Assoc. of Cardiothoracic Surgeons to conduct certifying exam for physician assistants working in area Discussion of development of Allied Health Council by the Indian government	1,300 (2012 info) MD ratio 2012 0.7/1,000 Population: 1.2 billion
Israel	2015/2016	In development	In development	Israeli Ministry of Health	MD ratio 2011 3.3/1,00 Population: 7.8 million
Nepal	Health Assistants 1970's	Completion of secondary school prior to admission 3 year training program – certificate in General Medicine post graduation can sit for Bachelor in Public Health > 20 programs in Nepal	Primary care focus	Council for Technical Education and Vocational Training – approves/ oversees pre– service curriculum Licensure through the Health Professional Council of Nepal	April 2015 = 15,000 MD ratio 2011 .21/1,000 Population: 30.9 million
Mongolia	Baga Emch / Feldsher 1931 – shortened training 1934 – 3 yr curriculum developed	Post secondary – 3 year program Medical diploma earned 2013 last class graduated of Baga Emch – training has stopped – will continue practice until all retired	Rural primary care/ health education / antenatal/ prenatal care–providing care from their own tents for the rural nomadic population. They have prescriptive rights Also at Soum (district) level	Ministry of Education, Culture and Sciences – education oversight Health Law of Mongolia – licensing every 5 years	1,100 – 1,200 currently practicing MD ratio: 27.3/10,000 (2010) Population: 2.9 million (July 2014)

TABLE B. Asian Accelerated Medically Trained Clinicians – continued

Country	Title Established	Education/Training	Scope	Regulation	Numbers
Myanmar	1953 Health Assistants Condensed Health Assistant Bachelor of Community Health	CHA (Condensed Health Assistant) Certificate Course – One year Three modules within (9) months Bedside training at hospitals for (2) months Field training and research for (1) month Bachelor of Community Health 4 year training course including 3 month clinical training at hospitals and 2 month research and field activities	Primary care / Pre– Referral treatment at rural health centers. They are not allowed to practice in general practice in private clinics	Department of Health, Ministry of Health oversees/ regulates clinical practice. Township Health Department also oversees work. Department of Medical Science and University of Community Health, Magway – oversight of curriculum.	Government posts HA – 1,800 HA Grade 1 – 365 THA (Township Health Assistant) – 96 INGOs and Myanmar Health Assistant Association – 250 MD ratio 2012 .6/1,000 Population: 55 million
Russia Post USSR: Armenia Kazakhstan Kyrgystan Uzbekistan	1600's Physician Assistant/ Apprentice Physician 1870's Feldshers	3– 4 year training schools 'middle grade medical personnel' 1974 – 500 schools training over 130,000 Feldshers (non specialized)	Feldshers– generalists Feldshers mid– wives Feldshers in industrial work Feldshers seagoing/river going vessels Feldshers in emergency services Feldsher– sanitarian Feldsher – child/adolescent care	Ministry of Health/ Ministry of Higher and Special Secondary Education	Russia MD 2010 4.3/1,000 Population: 142 million Armenia 2012 2.7/1,000 Population: 3 million Kazakhstan 2012 3.6/1,000 Population: 17.9 million Kyrgystan 2012 2/1,000 Population: 5 million Uzbekistan 2012 2.4/1,000 Population: 28.9 million
Kingdom of Saudi Arabia	Physician Assistant 2010	28 months of training in a master program. One program at Prince Sultan Military College of Health Sciences	To work as a 1st Lt. medical officer (Physician Assistant) under the supervision of a physician	Pending	22 male graduates that are practicing in the military MD ratio 2010 .9/1,000 Population: 27 million

TABLE C. Europe/North America/South America Accelerated Medically Trained Clinicians

Country/Europe	Title Established	Education/Training	Scope	Regulation	Numbers
Republic of Ireland	Physician Associate 5/2015 Royal College of Surgeons Ireland starts two year pilot program; Irish Health Care System	Development of PA thru UK, US, Canada, Dutch PAs filling 2 year contracts in surgery – two year pilot program starting 2015	Breast surgery Upper gastroenterology surgery Lower gastroenterology surgery Orthopaedic surgery Vascular surgery	Planned Education: UK & Ireland Universities Board for Physician Associate Education	Md/ratio=27/10,000 4.6 million
Germany	Physician Assistant 2005	36 months – bachelors degree	Primary Care as well as Emergency medicine, orthopedics, urology and cardiothoracic surgery	Training Accredited through Study Program in Health and Social Sciences State Examination to practice	2013 – 100 graduates MD ratio 2011 3.8/1,000 Population: 80.9 million
Netherlands	Physician assistant 2001	30 months 20 hours per week Work study model that is tied to one specialty. Physicians supervise and train their own PAs Master's degree	Mainly in surgical specialties About 75% of Dutch PAs work in hospitals	Accredited by Dutch Flemish Accreditation Review Commission on Education (NVAO), thru Ministry of Health, Welfare and Sport and the Ministry of Education, Culture and Science.	over 1,000 PAs MD ratio 2010 2.9/1,000 Population: 16.8 million
Ukraine	Feldshers started in Ukraine during WWII	Post high school entrance. 3 cycles of training – didactic and clinical.	Primary care focus – usually in rural clinics, also work on ambulances	Government oversight of all	16,000 in 2001 MD ratio 2012 3.5/1,000 Population: 44 million
United Kingdom England	Physician Associate 2003 – England	2 years Degrees: PGDip/ MSc in Physician Associate Studies 5 Univ training programs	General practice as well as multiple specialties including, but not limited to: Emergency medicine critical care surgery community psychiatry	Pending through Royal College of Physicians gain statutory regulation.	191 PAs qualified in the UK. There are a further 107 students MD ratio 2012 2.79/1,000 Population: 63.7 million
Scotland	Physician Associate 2013 first graduating class	Post graduate program 2 years in duration PgDip Physician Associate Studies	Wide variety of areas – working in teams within in the scope as agreed on by supervising physician	Education: UK & Ireland Universities Board for Physician Associate Education Must pass the National Examination – register with UK Association of Physician Associates to work in the UK as a PA	26 in training currently/ new class in 9/15

TABLE C. Europe/North America/South America Accelerated Medically Trained Clinicians – continued

Country/ North America	Title Established	Education/Training	Scope	Regulation	Numbers
Canada	Physician Assistants 1984 (Canadian Armed forces) 2008 start of non- service programs	24– 28 months in duration 4 PA programs	Primary care, internal medicine, Emergency medicine, surgery	Physician Assistant Certification Council of Canada Academics: Canadian Medical Associations’ Conjoint Accreditation services	11/14 PA: 475 working MD ratio 2010 2.1/1,000 Population: 34.8 million
United States	Physician Assistant 1965	Programs an average of 26 months long Bachelors as well as masters’ degrees awarded 179 training programs	Practice medicine as part of a team with physicians and other healthcare providers in all areas	National education accreditation: ARC– PA National certifying body: NCCPA State licensing bodies	100,000 in service MD ratio 2011 2.5/1,000 Population: 318.8 million
Country/ South America	Title Established	Education/Training	Scope	Regulation	Numbers
Guyana	Medex 1977	18 month post RN career 42 month post secondary school	Primary care in rural/remote areas/ health center management/ oversight of CHW	Medex Act /Ministry of Health	2013 70 – serving 747,884 population MD ratio 2010 .2/1,000 Population: 735,554

MD ratio: World Bank Country ///Population : The World Factbook (CIA)– est July 2014

TABLE D. Oceania Accelerated Medically Trained Clinicians

Country	Title Established	Education/Training	Scope	Regulation	Numbers
Australia	Physician Assistant 2011 first graduates in Australia from Queensland.	3 year Bachelors program offered, in Queensland, with a new cohort every two years	Queensland Health approved controlled scope of practice and prescription rights for PAs written into Policy. Local positions within specialties: Orthopedics Spinal Clinic General Practice Surgical assistance Critical care Emergency Department Community health Aboriginal Health Private Mining Support	Pending	Approximately 12 in service, remainder in waiting MD ratio 2011 3.27/1,000 Population: 22 million
Fiji	Medical Assistant 1975– 1984 (Nurse Practitioners since then)	Medical model	Primary Care	1978 Ministry of Health – Medical Assistant Council	61 trained during years MD ratio 2010 .4/1,000 Population: 903,207
New Zealand	Physician Associates Ongoing trial in 2 phases that began in 2006– 07 and will conclude early 2015	2 year post– graduate training model pending	Primary and specialty care under doctor supervision	New Zealand Ministry of Health	< 10 overseas trained physician assistants MD ratio 2010 2.7/1,000 Population: 4 million
Papua New Guinea	Medical Assistant 1910 Health Extension Officer 1970s	4 year bachelor training	Primary care services in rural and under-served communities	Papua New Guinea National Department of Health	452 Health Extension Officers MD ratio 2010 .1/1,000 Population: 6.5 million
Marshall Islands	Health Assistant 1970s– training ended over 30 years – Medex training now	18 month training – medex model trained outside (Hawaii)	Primary care to the 49 outer island health centers	Ministry of Health – Health Services Act	80 Health Assistants MD ratio 2010 .4/1,000 Population: 70,983

TABLE D. Oceania Accelerated Medically Trained Clinicians – continued

Country	Title Established	Education/Training	Scope	Regulation	Numbers
Tonga	Health Officer 1977	2 year training	Tonga's 14 health care centers are staffed by 1 health officer & 4 nurses – they support about 7,200 people	unknown	Unknown number of Health Officers MD ratio 2010 .6/1,000 Population: 106,440

MD ratio: World Bank Country /Population : The World Factbook (CIA)– est July 2014