

Report of the Clinical Associate National Task Team 2017

Clinical Associate Training and Profession - Current Successes and Future Steps

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EXECUTIVE SUMMARY

1. 937 clinical associates have been trained from 2008-2017, with 698 of the 794 trained through 2016 employed. To better understand the value and future of this relatively new profession, as mid-level medical workers, the National Department of Health established a Task Team to review their achievements. The basis of this report is to discuss what has been learned about clinical associates and how this applies to the current challenges faced by the health system. It is intended to aid the Department of Health and to formalise the way forward for clinical associates, with the approval of the National Health Council.
2. Clinical associates are a supervised team of mid-level health workers introduced in South Africa, defined by the Global Health Workforce Alliance as “a group of cadres who are trained for 2-5 years to acquire basic skills in diagnosing, managing common conditions, and preventing disease.” By October 2017, 780 of 794 clinical associates qualified through December 2016 were registered with the HPCSA and 698 employed throughout all nine provinces. Currently, three South African Universities produce approximately 150 clinical associates each year.
3. An estimated 11 000 clinical associates are needed in the public health service to make a significant impact on the quality and quantity of services delivered, given the current healthcare structures in the country. By appointing clinical associates to district hospitals, community health centres, primary healthcare clinics, and to support NHI ward-based primary healthcare outreach teams and district clinical specialist teams, this objective of employing 11 000 clinical associates will be achieved by 2030.
4. Young people from socially disadvantaged areas are recruited and trained as clinical associates to be versatile and flexible generalist clinicians. This profession provides educational and professional opportunities for young South Africans while addressing dire health workforce shortages.
5. South Africa’s health expenditure does not produce the desired health outcomes. The private sector accounts for 60% of the country’s healthcare expenditure, but only covers 14% of the population. Clinical associates are well positioned to provide cost-effective promotive, preventive and curative healthcare services to all who live in South Africa, and especially to those with the highest need - the rural and urban poor.
6. At current salaries, the Department of Health can employ 2.4 clinical associates for the cost of one medical practitioner. Even with a proposed salary increase, DOH will still be able to employ two clinical associates for the cost of one medical practitioner. The inclusion of clinical associates in clinical teams can result in human resource cost savings between 7% and 21%.
7. South Africa has both a shortage of healthcare workers and a skewed distribution of healthcare workers between the public and private health sectors, and between urban and rural areas. The worst deficits are in rural areas in the public sector. At the same time, South Africa is facing an increase in disease burden: explosive HIV and TB epidemics, chronic illnesses, mental health disorders, injury and violence-related deaths, as well as a silent epidemic of maternal, neonatal and child mortality.
8. Clinical associates are an integral part of the solution. Eighty percent of clinical associates are already serving district health services at clinic, CHC and hospital level. A 2015 survey of employed

clinical associates found that 64% of 92 respondents worked in rural areas. Clinical associates implement a wide variety of tasks in clinical units, e.g. OPD, wards, emergency departments, theatre (surgery), ARV clinics, maternity, paediatrics and VMMC. Most of these tasks usually form part of the workload of medical practitioners. Through teamwork and task sharing, and with appropriate supervision; clinical associates are delivering cost-effective, quality healthcare services while reducing the workload of other healthcare professionals. Studies indicate a clinical associate performs on average 5 000 patient consultations per year.

9. Clinical associates are fully trained to manage most patients presenting to busy emergency departments. Clinical associates act as the required first assistant at operations such as caesarean sections, laparotomies and orthopaedic operations; freeing up medical practitioners for other tasks. Their contribution to after-hours call duty, when medical practitioners are often in short supply, is particularly useful.
10. Clinical associates both conduct and participate in ward rounds alongside medical practitioners to ensure that patient management, investigations and procedures are scheduled and carried out timeously. They ensure that the results of investigations are recorded and follow-ups are diarised. Clinical associate involvement means patients are discharged sooner, instead of waiting for procedures or the results of tests.
11. As part of the re-engineering of primary health care, clinical associates can serve in various roles in the proposed NHI. They could provide clinical support to the community health workers and team leaders in the Ward-Based Primary Healthcare Outreach Teams (WBPHCOT), while also facilitating the integration of services between the community and other levels of care. Private healthcare providers, with clinical associates on their staff, may be more suitable for contracting through the NHI to provide essential primary healthcare services. Clinical associates are trained to provide 11 of the 16 primary clinical services offered by the NHI.
12. Qualified clinical associates are grounded in HIV care, and many have become essential drivers of service delivery in ARV units, which support the UNAIDS' ambitious 90-90-90 goal to end the AIDS epidemic: *"By 2020, 90% of all people living with HIV will know their HIV status. By 2020, 90% of all people with diagnosed HIV infection will receive sustained antiretroviral therapy. By 2020, 90% of all people receiving antiretroviral therapy will have viral suppression."* (www.unaids.org)
13. Clinical associates compliment five of the eight goals of the 2017-2022 HIV National Strategic Plan. They provide patient consultations, HIV testing, ARV initiation, adherence counselling, regime change, opportunistic infection management and Voluntary Medical Male Circumcisions (VMMC). Each clinical associate provides care for approximately 17 PLHIV in a typical day. At facilities managed by one NGO programme, clinical associates perform 1 500 VMCMs per month at 16 sites in four provinces.
14. The cost of training a clinical associate is less than half that of training a medical practitioner. Their education is completed in 3 years compared to the 7 or 8 years for medical practitioners. Clinical associate training can be scaled up more easily, and in a shorter time frame, than that of medical practitioners.
15. The clinical associate scope of practice was approved in October 2016 by the Minister of Health, following broad and substantive input from key stakeholders including, but not limited to, all the professional boards of the HPCSA, NDOH, SAMA, SANC, DENOSA and SAPC. The scope is well

defined in allowing the clinical associate to practice medicine with appropriate supervision. Clinical associates can perform “any act delegated to them by their supervising medical practitioners in accordance with their education, training and experience.” They can prescribe medication up to Schedule IV, and higher in cases of emergency. The scope allows clinical associate practice to adjust to meet the needs of the medical field - and the profession’s role within it - as medicine develops.

16. Clinical associates are not currently recognised as authorised prescribers, as outlined in the scope of practice. HPCSA and Medicines Control Council have started the authorisation process. Until this is implemented, the efficiency of clinical associates will be restricted.
17. The supervising medical practitioner accepts liability for the professional acts of the clinical associate. Supervision can be direct, indirect, collaborative, assistive or telephonic as needed. The liability excludes acts of negligence on the part of the clinical associate and acts which fall outside the scope of their education, training and experience, as stipulated in ethical rule 21 of the HPCSA. Therefore, clinical associates must take full responsibility for any acts of negligence on their part.
18. The scope of practice signed in 2016 includes guidelines for supervision of the clinical associate by a medical practitioner, relative to the years of consecutive clinical practice of the clinical associate. The scope of practice stipulates the importance of clinical mentoring, teaching, collaboration and coaching, with the medical practitioner in an advisory role in addition to that of a supervisor, responsible for the acts of the clinical associate.
19. Training of clinical associates embraces the 2010 Lancet Commission report on health education reform with competency-based learning, clinical training in the workplace, and interdisciplinary-interprofessional learning. All clinical associates are trained according to an agreed set of national exit outcomes for defined entrusted professional activities culminating in a standard national exit examination.
20. Most clinical associate training is rooted in the public healthcare service, often in underserved and rural areas. The training prepares clinical associates for the provision of promotive, preventive and curative health services at all levels of district and primary health care. This cadre is “fit for purpose” to deliver primary health care immediately upon graduation. Internships and community service are not recommended.
21. Opportunities for further training include various postgraduate diplomas, honours, masters and doctoral degrees. Postgraduate training will be in line with NDOH identified health service needs. Clinical associates have already pursued further education and training in infectious diseases and public health. An honours degree specific to clinical associates and their scope of work has started in emergency medicine, and discussions on additional disciplines are underway, pending approval from all relevant regulatory bodies.
22. Through their academic progress and appropriate work experience, clinical associates will advance on a proposed career path from entry level to principal clinical associate. Their job descriptions will also change as befitting their education, training and experience. As with other healthcare professionals, clinical associates must be afforded opportunities to progress into managerial positions.

SUMMARY OF RECOMMENDATIONS

Reasons why the employment and training of clinical associates should be prioritised:

- 1) Clinical associates deliver primary health care, and are trained to manage common illnesses and diseases prevalent in South Africa under clinical supervision and mentorship, which allows for flexibility in allocation of human resources for health.
- 2) Clinical associates, recruited purposefully to transform the healthcare service in the public sector, are ideal health professionals for NHI, whilst also addressing youth unemployment in disadvantaged communities.
- 3) Clinical associates are cost and time efficient to train while providing a wide range of quality cost-effective medical services to underserved populations where other healthcare professionals are in short supply and/or unaffordable.
- 4) Clinical associates are a valuable addition to human resources for health to share the workload of medical practitioners, professional nurses and the rest of the healthcare team.

Chapter 1 Summary of Recommendations

Utilisation of clinical associates in the South African healthcare workforce

1. Create sufficient clinical associate posts in all levels of healthcare teams, in all provinces; as required by the health service in hospitals, CHCs, clinics, WBPHCOTs, etc.
2. Include clinical associates in the implementation of NHI as part of the four streams of PHC re-engineering and the ideal clinic model.
3. Increase the production of clinical associates by (a) supporting existing training programmes to double the intake of students, and (b) establishing clinical associate training programmes at other health science faculties.
4. Establish and maintain a database detailing training and employment of clinical associates to guide policy and the utilisation of the profession.

Chapter 2 Summary of Recommendations

Clinical associate employment and placement strategies for CEOs, CFOs and clinical managers

1. CEOs, CFOs and clinical managers should budget for clinical associate posts then rotate them to the departments where clinical associates can make an impact: wards, OPD, emergency, maternity, paediatrics, operating theatre and HIV clinics. Rotating clinical associates also ensures that the skills developed during their training are sustained and expanded.
2. NDOH should discuss with the Department of Public Service and Administration (DPSA) mechanisms to create greater flexibility in the system to utilise vacant posts in the medical professions, to employ clinical associates and convert posts if needed.
3. Ensure adequate supervision, mentorship and support of clinical associates. Include supervision and

collaboration in the job descriptions and performance management contracts of medical officers, family physicians and medical managers.

4. Consider the composition of the clinical team and how its functioning can improve through the addition of clinical associates to the service.
5. Clinical managers need to educate all hospital staff on the medical role clinical associates perform in each department, to better utilise this skill set. A job description and a comprehensive list of their roles and responsibilities (Table 10 in Chapter 2) should be available to all applicable sections of the health service.

Chapter 3 Summary of Recommendations

Scope of practice and guidelines for the supervision of clinical associates

1. Supervision guidelines in the scope of practice require clarity and interpretation for all professionals of the team to perform efficiently. This report provides a suggested description: in the first two years of practice by the clinical associate, the medical practitioner acts as mentor and provides direct supervision; from two-to-four years, the medical practitioner acts as advisor and provides indirect supervision; and after five years of practice, the medical practitioner works with the clinical associate as partner and provides collaborative supervision.

| Period of practice | Supervision | Role of supervising medical practitioner |
|--------------------|---------------|--|
| 0-2 years | Direct | Mentor |
| 2-4 years | Indirect | Advisor |
| 5+ years | Collaborative | Partner |

2. Educate healthcare professionals on the method of supervision of clinical associates to integrate this cadre successfully.
3. Expedite the process of finalising prescriptive rights for clinical associates up to Schedule IV, as set out in the scope of practice, by liaising with the South African Pharmacy Council (SAPC) and the Medicines Control Council (MCC) to maximise the efficiency of the healthcare team.

Chapter 4 Summary of Recommendations

Implementing academic pathways

Recommendations for undergraduate training

1. Faculties of Health Sciences in all nine provinces should be supported by government to start and/or expand undergraduate clinical associate training programmes.
2. Funding should be directed purposefully to expand and promote training in underserved and rural communities.
3. Fund the training of clinical associates by requiring the Departments of Health in all provinces to provide a minimum number of bursaries annually.

Recommendations for postgraduate training

1. Government (National Department of Health and Department of Higher Education) should work together with universities and HPCSA to develop postgraduate training for clinical associates according to needs identified in the health system.
2. Universities should develop curricula for different postgraduate courses and follow university course development processes.

3. The government must allocate funds for postgraduate training for clinical associates.
4. Establish a task force of relevant stakeholders to develop appropriate postgraduate diplomas, honours and master's degrees.

Recommendations for community service/internships

1. Internships are not proposed for clinical associates as the three-year training is clinically based, which makes internship redundant.
2. Since a significant portion of clinical associates already provide health care in underserved communities, community service is not recommended.

Implementing Professional Career Pathways

Based on the approved regulations defining the scope of practice for clinical associates, it is recommended that:

1. A new job evaluation be instituted to determine the appropriate salary structure.
2. A clinical career path be established according to the scope of practice and service model, plotting their progression from for example entry level clinical associate to senior clinical associate, to principal clinical associate.
3. Advancement of clinical associates into various management positions in the health service in existing line management streams should follow already existing manager position promotional rules.

CHAPTER ONE: PROBLEM STATEMENT

1A. Challenges to Healthcare Delivery in South Africa

Disease burden¹

South Africa is facing the burden of continuing HIV/AIDS and TB epidemics, high maternal and child mortality, high figures of violence and injuries, and a growing rate of non-communicable diseases (NCDs). South Africa's per capita health burden is the highest of any middle-income country in the world. The most impoverished families still carry the brunt of all these diseases.

With only 0.7% of the world's population, South Africa has 17% of the world's HIV/AIDS cases – 5.5 million people - and the highest HIV/AIDS figures of any country. Linked to this is an epidemic of TB that has more than doubled since 2001, with significant numbers of multi-drug resistant TB cases and increasing XDR TB. Although documented cases of TB have risen four-fold between 1986 and 2006, many cases still go unrecorded.

Each year almost 75 000 children die – 23 000 in their first four weeks of life. An additional 23 000 babies are stillborn, which closely relates to 1 660 maternal deaths. The primary causes of maternal mortality are direct obstetric causes and HIV/AIDS, which increases the risk of maternal death ten-fold. The most common contributing factors of child deaths are neonatal vulnerability and susceptibility to diseases (over 30%), and HIV/AIDS.

Noncommunicable diseases comprise primarily of cardiovascular diseases (like heart attacks and stroke), cancer, chronic respiratory conditions (such as obstructed pulmonary disease and asthma) and diabetes; but also include kidney disease and mental illness. The burden of these chronic diseases is disproportionately heavy for the urban and rural poor, who are twice at risk compared to the rich. Major factors include demographic change, leading to a rise in the proportion of people living to older than 60 years, despite the negative effect of HIV/AIDS on life expectancy. Obesity is an increasing problem in South Africa, especially for low-income women. Occupational exposure is another factor, particularly for chronic lung disease.

Violence and injuries together form the second leading cause of death in South Africa. The injury death rate is almost double the global average, and nearly half of the injury deaths are from interpersonal violence, mostly between men. About 16 000 road traffic accident deaths occur each year. Gender-based violence is exceptionally high, with the female homicide rate six times the global average, and partners kill 50% of these women. Twenty-eight percent of men admit to having raped a person. Children are regularly exposed to sexual, physical and emotional abuse and neglect.

Clinical associates are trained to recognise and manage the most common medical presentations in South Africa, making them the ideal health professional to scale up and support the healthcare teams to address these severe health and welfare issues in South Africa.

To better understand the value and future of the clinical associate as a medical mid-level worker, the National Department of Health established a Clinical Associate National Task Team. Their brief was to review what has been learnt over the past ten years of training over 900 and appointing almost 700 clinical associates, and how this applies to the current challenges faced by the health system. The outcome of this

¹ The Lancet, Health in South Africa Executive Summary (<http://thelancet.com/series/health-in-south-africa>)

work forms the basis for this report, which is intended to aid the Department of Health in formalising the way forward for clinical associates, with the approval of the National Health Council.

Human Resources for South Africa's Healthcare Requirements

Weak district health systems and a severe lack of qualified healthcare workers mean citizens in many parts of South Africa have insufficient access to quality healthcare services. In 2016 there were 43 277 medical practitioners registered with the HPCSA. For the country as a whole, this gives a doctor-to-population ratio of 0.77 per 1 000. To reach the global average of 1.5 medical practitioners per 1 000 population, South Africa will need 40 807 new medical practitioners. Adding 12 857 will make this ratio one medical practitioner to 1 000 people. South African medical schools are unlikely to produce sufficient graduates to meet this need in the foreseeable future. During the five years from 2011 to 2016, the number of medical practitioners registered with the HPCSA increased by an average of 3% per year, while the South African population grew by approximately 1.6% per year. Therefore, the growth, in real terms, has been 1.4%. Considering the slow rate of increase in the production of doctors, it may take 20 to 30 years to reach a 30% increase in the doctor-to-population ratio.

South Africa has not only a shortage of healthcare workers, but also a skewed distribution of healthcare workers between the public and private health sectors and between urban and rural areas. The worst shortfall is in rural areas in the public sector. Given that 73% of all general practitioners work in the private sector, there is an average of just one practising doctor for every 4 219 people, for the vast majority of the population. The few medical practitioners working in rural and underserved areas face an overwhelming workload. To illustrate: 43.6% of the population in South Africa lives in rural areas, but only 12% of the medical practitioners and 19% of the nurses work there.² Therefore, adding clinical associates to an overburdened clinical team will significantly increase both quantity and quality of health care.

Health financing constraints

Annual health spending per capita in South Africa is US\$748, which is well above the WHO standard of \$45. The percentage of government spending on health as a proportion of total government expenditure is 10.8%, which does not meet the target of 15% set by the African Union in the Abuja Declaration. Out-of-pocket spending as a percentage of total health expenditure is 10.3%. While accounting for 60% of the country's healthcare expenditure, the private sector only covers 14% of the population. Medical schemes cover between 9-28% of the population, depending on the province.³

Government health expenditure as a percentage of total health expenditure increased from 39.9% in 2006 to 48.4% in 2013. External resources decreased from 2.3% to 1.8% over the same period. South Africa has instituted a strategic program to achieve universal health coverage by improving infrastructure, human resources for health and procurement. Compared to the average upper-middle-income countries, South Africa's government allocates more resources to health as a share of total government expenditures (14% versus 11%). Implementation of National Health Insurance (NHI) will be challenging due to the high cost, estimated at a total of US\$16.5 billion per year by 2025.⁴ Clinical associates can be a cost-effective healthcare provider in this new system.

Clinical associates are part of the solution

The disease burden in South Africa is well documented with multiple efficient healthcare strategies in place

² Department of Health. Human Resources for Health South Africa: HRH strategy for the health sector 2012/13 - 2016/17. 2012

³ The Lancet, Health in South Africa, Executive Summary

⁴ Health Financing Profile. May 2016. (https://www.healthpolicyproject.com/pubs/7887/SouthAfrica_HFP.pdf)

by the government and private sector to address the issues. The development, training and appointment of clinical associates is one of the major initiatives, started in 2008 at Walter Sisulu University and 2009 at the University of Pretoria and University of the Witwatersrand, which has already brought solutions to the healthcare situation. The Professional Association for Clinical Associates in South Africa (PACASA) has advocated for clinical associate professional recognition and recruitment.

This report by the Clinical Associate National Task Team highlights the successes, challenges and recommendations for the way forward. This young energetic healthcare cadre is making an impact on healthcare delivery in South Africa. During their investigation, the Task Team has recognised the achievement of the clinical associate initiative and its enormous potential for alleviating the medical practitioner personnel shortage and reducing the pressure on the financing budget.

1B. Background & Achievements of Mid-Level Health Workers

Success of mid-level medical workers internationally

The term mid-level health worker, as defined by the Global Health Workforce Alliance, is “a group of cadres who are trained for 2-5 years to acquire basic skills in diagnosing, managing common conditions and preventing disease”.⁵ This health professional has existed globally for more than 100 years in many countries, providing essential medical care, particularly in rural and underserved regions.⁶

A review by the World Health Organisation concluded: “Overall, however, the existing evidence suggests that where mid-level cadres received appropriate support and adequate training, their performance is close to or even better than that of their professional counterparts.”⁷

Another review of mid-level workers (MLW’s) also concluded: “While more evidence is desirable, there seems to be no reason to discard the idea that, for a number of health conditions, MLW’s can provide equivalent quality care to medical practitioners. MLW’s, with appropriate and adequate training who are provided with continued support and supervision, can indeed provide care comparable to medical professionals. Such training and support, however, is not guaranteed in low-resource settings.”⁸

The WHO guideline on task shifting also states that non-physician clinicians can perform the majority of clinical tasks safely and efficiently. They do need a good referral system and easy access to medical practitioners/clinicians with expertise for high levels of performance.⁹

The consensus is that although more evidence is needed in African countries, mid-level workers can provide the same quality of care as higher level workers provided that they receive adequate training,

⁵ Mid-level health workers for delivery of essential health services. A global systematic review and country experiences. Authors: Global Health Workforce Alliance. WHO reference number: WHO/hss/hwa/mlp 2013/ENG (<http://www.who.int/workforcealliance/knowledge/resources/mlp2013/en/>)

⁶ Mid-level health providers: A Promising Resource. Andrew Brown, et al. Rev Peru Med Exp Salud Publica. 2011; 28(2): 308-15. (http://www.who.int/workforcealliance/media/photos/MLP_Article_Jul2011.pdf?ua=1)

⁷ Lehmann U. Mid-level health workers: the state of the evidence on programmes, activities, costs and impact on health outcomes. A literature review. Geneva: World Health Organisation; 2008. Geneva, Switzerland; 2008

⁸ Bangdiwala SI, Fonn S, Okoye O, Tollman S. Workforce resources for health in developing countries. Public Health Rev. 2010;32(1):296–318.

⁹ World Health Organisation. Task shifting: rational redistribution of tasks among health workforce teams: global recommendations and guidelines. 2007.

support and supervision. Failing which the quality of care can be sub-optimal.¹⁰ Task sharing is a critical strategy to extend the workforce with the aim of ensuring adequate access to health services. With this in mind, there is extensive evidence locally, regionally as well as internationally, that mid-level medical practitioners, such as the clinical associate, make significant contributions to extending the capacity of the health team to offer access to quality health services.

Success of clinical associates as mid-level medical workers in South Africa

The decision to start training mid-level workers in South Africa is based on a recommendation in the Pick Report for human health resources in 2001. The report advised the creation of a “multi-skilled mid-level health worker” as an assistant to the medical practitioner.¹¹ The focus of the training for these new clinical associates is in rural district hospitals, to support and work with medical practitioners in carrying out clinical tasks.¹² Clinical associates are required to work under the supervision of a medical practitioner. The intention is that they perform many of the less complicated routine tasks that usually consume much of the medical practitioner’s time, allowing medical practitioners to focus on tasks that are more complex.¹³ ¹⁴ These routine tasks include patient consultations, counselling, skilled clinical procedures and surgical assistance.¹⁵ Some of these tasks are also performed by nursing staff, although they are out of their scope of practice and put extra pressure on nursing staff.¹⁶ Doherty concludes that “clinical associates are not intended to replace doctors or nurses – they are intended to work with them, sharing some of their workload, freeing them to concentrate on the tasks for which they are uniquely qualified.”¹⁷

Clinical associates have been providing medical care in South Africa since 2011, when the first cohort of 23 registered clinical associates graduated from Walter Sisulu University. In 2012, 105 clinical associates joined their pioneering colleagues, with the University of Pretoria and the University of the Witwatersrand producing 80 and 25 graduates respectively. Each year, about 140 - 170 clinical associates graduate from the three universities which are registered with the HPCSA, to practice medical care under the supervision of medical practitioners. As of December 2017, there are 990 graduates; of the 780 graduates from 2008-2016, approximately 698 clinical associates are working in all nine provinces of South Africa. The Health Professions Act was amended in 2007 to provide for the registration of a qualified clinical associate “to practice the profession under supervised practice.”¹⁸

Clinical associates provide clinical skills where they matter. The majority of clinical associates work in the public sector at primary care level in underserved and rural areas. Considering that 43.6% of the South African population lives in rural areas, but only 12% of medical practitioners and just 19% of nurses work

¹⁰ Global Health Workforce Alliance. Mid-level health workers for delivery of essential health services A global systematic review and country experiences. 2013.

¹¹ Hugo J. Implementation Plan for a Midlevel Medical Worker for South Africa. A discussion paper. SA Fam Pr. 2004;46(2):5–8.

¹² Couper ID, Hugo JFM. Addressing the shortage of health professionals in South Africa through the development of a new cadre of health worker: the creation of Clinical Associates. Rural Remote Health. 2014;14(3):2874.

¹³ Doherty J. Addressing staff shortages in public hospitals: a role for clinical associates? Newsl - Public Heal Assoc South Africa. 2013 Feb;

¹⁴ Hugo J. Midlevel medical worker: Problem or Solution? SA Fam Pr. 2004;46(2):3.

¹⁵ Hugo J. Implementation Plan for a Midlevel Medical Worker for South Africa. A discussion paper. SA Fam Pr. 2004;46(2):5–8.

¹⁶ Doherty J, Conco D, Couper I, Fonn S. Developing a new mid-level health worker: lessons from South South Africa’s experience with clinical associates. Glob Heal Action. 2013;6(19282).

¹⁷ Doherty J. Addressing staff shortages in public hospitals: a role for clinical associates? News - Public Health Assoc South Africa. 2013 Feb

¹⁸ Regulations relating to the qualifications for registration of clinical associates, 19 December 2007

there¹⁹, rural regions clearly have a significantly higher and more urgent need for healthcare providers. Most clinical associate students are recruited from rural areas and have consistently expressed a preference for working in rural areas.²⁰ Economically, this makes a significant impact on their families and the local communities.

Prioritising clinical associates in human resources for health workforce planning 2013 – 2017

The National Department of Health HRH Strategy for the Health Sector 2012/13 - 2016/17 strategic planning document issued in 2011 recommends to “Consolidate the training of clinical associates, ensure formal financing of the programmes, expand production to all faculties of health sciences, ensure they are on Persal, have career pathways, and posts in the public and private sectors.”

Given the seven-year success of the clinical associate profession, the NDOH needs to prioritise this mid-level cadre. The HRH Strategy for the Health Sector document proposed re-engineering of the healthcare workforce with clinical associates as priority. 4.2.6: “An important new Mid Level health professional in the new healthcare model is the Clinical Associate. This Clinical Associate (CA) will initially work in district hospitals to strengthen healthcare services in the district and to address the shortage of doctors at district hospital and community health centre level. The district hospital is considered to be the ideal setting for the CA due to its well-defined and manageable level of care where it is possible to be specific about the scope and practice limits for the CA. The CA will be part of a team in different units in the district hospital (emergency unit, outpatient departments, medical and surgical units, and maternity). In operating theatres, the CA will assist the doctor in basic procedures like incisions, drainage and evacuations. The regulation of the CA will rest with the HPCSA. The scope of practice of the CA is intended to fill the gap that exists in district hospitals where a large proportion of the clinical work of doctors is related to emergency care, diagnostic and therapeutic procedures and inpatient care. This differs from the scope of practice of the PHCN practitioner at the clinic where first contact care, chronic care and prevention are most important”.

The HRH Strategy promoted eight strategic priorities, with clinical associates defined in three of the eight:

HRH STRATEGY FOR THE HEALTH SECTOR 2012/13 - 2016/17

STRATEGIC PRIORITY 3: A WORKFORCE FOR NEW SERVICE STRATEGIES

Foundation 3. Introduce and expand mid-level workers

- The new cadre of clinical associates will be increased

STRATEGIC PRIORITY 4: UPSCALE AND REVITALISE EDUCATION, TRAINING AND RESEARCH

Strategic objective 4: To ensure the revitalisation of the production of a health workforce with the skills mix and competencies, education and training, to meet health service demands.

Objective 4.4: Plan the development and institutionalised training of mid-level workers.

Objective 4.4.5: Ensure clinical associate training is funded, expands to meet district hospital needs, and that posts are opened in the public sector for new CA graduates.

STRATEGIC PRIORITY 8: ACCESS IN RURAL AND REMOTE AREAS

Strategic objective 8: To promote access to health professionals in rural and remote areas.

Objective 8.3 Develop regulatory strategies to improve access to health professionals in rural and remote areas and quality of care.

8.3.3 Enhance the development and placement of clinical associates, including establishing posts in all district hospitals and development of training positions in rural districts.

¹⁹ Department of Health. Human Resources for Health South Africa: HRH strategy for the health sector 2012/13 - 2016/17. 2012

²⁰ Moodley S V, Wolvaardt L, Louw M, Hugo J. Practice intentions of clinical associate students at the University of Pretoria, South Africa. Rural Remote Health. 2014;14(2381):1–12.

Examples of specific areas where clinical associates are having a significant impact

HIV care and meeting 90-90-90 targets

Once qualified, clinical associates are well grounded in HIV care. Many have become essential drivers of service delivery in ARV units, to meet the UNAIDS goals of 90% of all PLHIV knowing their HIV status, 90% of all people with diagnosed HIV infection receiving sustained ART, and 90% of all people receiving ART having viral suppression. Clinical associates provide patient consultations, HIV testing, ARV initiation, adherence counselling, regime change and opportunistic infection management. Clinical associates compliment five of the eight goals of the 2017-2022 HIV, TB and STI National Strategic Plan. They are helping to improve patient care and treatment through district hospital HIV services in OPDs and clinics in rural, under-served and high prevalence district hospitals that suffer from a dire shortage of medical practitioners. Each clinical associate provides care for 17 PLHIV in a typical day. At facilities managed by one NGO programme, clinical associates perform 1 500 VMMCs per month at 16 sites in four provinces.²¹

Clinical skills for voluntary medical male circumcision (VMMC)

Clinical associates have performed the majority of the voluntary male medical circumcisions at VMMC units to date. Clinical associates are making a significant contribution to the prevention of HIV through VMMC. According to a report submitted to the School of Health Systems and Public Health at the University of Pretoria, clinical associates in three clinics and two hospitals in the Tshwane Metropolitan area performed 88.7% of 4 850 circumcisions in the period from January 2014 to April 2015. The quality of the circumcisions did not differ from the 11.3% done by medical practitioners, as measured by the incidence of complications²². Similarly, in KZN and Mpumalanga, the vast majority of medical circumcisions are done by clinical associates. The alternative of using medical practitioners would have been unaffordable. Large-scale VMMC efforts have been shown to prevent new HIV infections leading to significant cost savings²³. This effort by clinical associates supports the National Strategic Plan for HIV, TB and STIs 2017-2022.

Assisting at major surgical procedures

Clinical associates act as the required surgical assistant at operations such as caesarean sections, laparotomies and orthopaedic surgeries, freeing up medical practitioners for other tasks. They make a particularly useful contribution to after-hours call duty when medical practitioners are often in short supply.

Shortening ALOS (Average Length of Stay)

Clinical associates have been trained to participate in ward rounds alongside medical practitioners. They ensure that the results of investigations and minor diagnostic and therapeutic clinical procedures are recorded and followed up. These functions result in patients being discharged sooner rather than waiting for procedures or the results of investigations. Numerous studies demonstrate the benefits of mid-level workers in this respect²⁴.

²¹ Ibid.

²² The Quality of Voluntary Medical Male Circumcision done by Clinical Associates, Sanele Ngcobo, Liz Wolvaardt, Martin Bac, Elize Webb

²³ Voluntary Medical Male Circumcision: Modeling the Impact and Cost of Expanding Male Circumcision for HIV Prevention in Eastern and Southern Africa, Emmanuel Njeuhmeli, Steven Forsythe, Jason Reed, Marjorie Opuni, Lori Bollinger, Nathan Heard, Delivette Castor, John Stover, Timothy Farley, Veena Menon, Catherine Hankin Published: November 29, 2011
<https://doi.org/10.1371/journal.pmed.1001132>

²⁴ Quality of care provided by mid-level health workers: systematic review and meta-analysis, Zohra S Lassi, a Giorgio Cometto, b Luis Huichoc & Zulfiqar A Bhutta, Bull World Health Organ 2013;91:824–833 | doi: <http://dx.doi.org/10.2471/BLT.13.118786>

1C. Reasons Clinical Associates are Suited to Address South Africa's Healthcare Needs

Unique attributes and advantages of the clinical associate profession

Versatile and flexible

Clinical associates are predominantly trained in district hospitals as general workers at primary care level. They have very little exposure to the specialist culture of tertiary healthcare facilities, and as such follow a more primary care approach to service delivery, making them ideally suited for less sophisticated rural patients. They can serve in ward-based PHC outreach teams, PHC clinics, CHCs, and in various sections of district hospitals. They are trained to work where they are "fit for purpose" alongside the medical practitioner to alleviate the workload in that environment. As with medical practitioners and PHC nurses, clinical associate training has a focus on clinical reasoning and problem solving: the hypothetical-deductive reasoning model. With appropriate further training, their skills can be expanded to meet specific needs in the district health service, e.g. to provide clinical care to substance users, perform minor surgical procedures, conduct ultrasound investigations, provide HIV initiation and follow up, MDR TB treatment and monitoring, etc. Clinical associates are currently trained to deliver 11 of the 16 services for the National Health Insurance scheme.

Patient centeredness

The clinical associate profession was developed under the guidance of the family medicine discipline, with family physicians diligently involved in their training and supervision. The family medicine profession has a patient-centred ethos associated with improved health outcomes. Also, because many clinical associate students are recruited from the areas where they will serve, they are usually fluent in the language of the patients that they serve, thus building strong relationships with their patients.

Team-based care

Clinical associates are supervised practitioners with the ethos of continual mentorship and collaboration with medical practitioners built into their scope of practice. Their training has a strong emphasis on inter-professional education while working in teams with medical practitioners and other health professionals. Team-based care can be more efficient with each team member performing the tasks for which they are best qualified and experienced while gaining clinical skills from senior practitioners. Team-based care can also lower the rate of medical errors. The clinical associate is ideal to join the envisioned team approach in the NHI.

Current objectives in the South African public health service that are, and can be, addressed by clinical associates

Shortage of medical practitioners

Through task sharing, clinical associates can lighten the workload of both medical practitioners and nurses. However, as clinical associates are trained in the medical model, they will have a significant impact on reducing the workload of medical practitioners specifically. Primary healthcare nurses could also be considered as a solution to the shortage of medical practitioners, but they are more expensive to train and employ, and their numbers are not sufficient to meet the need for PHC services. The training of clinical associates includes many procedures that the PHC nurses are not trained to perform. Thus, clinical associates are better equipped to share the medical practitioners' tasks and workload. The roles of many experienced clinical associates have expanded to include managerial responsibilities, reducing work for medical practitioners who are seeing increased demands on student training with the decentralised

learning platform.

Adding clinical associates to an overburdened clinical team reduces the work pressure on medical practitioners and increases productivity, quality and quantity of care. Several facilities have reported shorter queues at outpatient departments and other areas since the introduction of clinical associates.

Shortage of medical professionals in rural and underserved areas

Clinical associates provide appropriate clinical skills where it matters. The majority of clinical associates work in the public sector in underserved and rural areas. Most clinical associate students are recruited from rural areas and consistently express a preference for working in rural areas. Since they are employed in the areas where they prefer to work, they are more likely to continue working there for longer periods of time, increasing staff retention and reducing turnover.

Clinical associates are more willing to work in rural areas because they are recruited from rural communities and are trained close to where they are recruited.^{25, 26} Moodley et al.²⁷ researched practice intentions and practice preferences of BCMP students regarding geographical location. The study found that reasons for choosing the location of work are “*bursary obligations (46.9%), family reasons (30.8%) and other reasons (22.3%)*”. Furthermore, the study found that 59.6% of the students intended to work in rural areas. The preference for working rural was associated with having lived most of their lives in a rural area.²⁸ If given complete freedom of choice without bursary or family obligations, 53.4% indicated a preference to work in rural areas.

These results are in stark contrast with research of final year medical students. Only 4.8% of the medical students were interested in working in rural areas, beyond training and bursary obligations. In a 2015 survey of employed clinical associates, it was found that 64% of 92 respondents worked in rural areas. Clinical associates are far more likely to work and remain in rural areas compared to medical practitioners. However, it is essential that positive incentives be implemented, such as good working and living conditions, adequate supervision, appropriate remuneration, and opportunities for training and career progression.

Shortage of after-hours medical practitioners

With the introduction of clinical associates, managers should consider shift work contracts, and other innovative ways to ensure their maximum effectiveness in the healthcare service. Shifts can be arranged to ensure they are available at the times of highest pressure on the service. Between 16:00 and 18:00 is recognised as the time when other clinicians are ending their workday and the on-call team cannot cope with the influx of new and urgent patients; and there are still the remaining patients from the daytime queues.

In many hospitals, clinical associates are making a valuable contribution to after-hours service by being part of the on-call team. They are currently not paid commuted overtime as doctors are, but claim for hours worked. When a clinical associate assists at an emergency operation, such as a caesarean section, trauma surgery or emergency laparotomy, one medical practitioner is freed up to attend to emergencies in

²⁵ World Health Organisation. Task shifting: rational redistribution of tasks among health workforce teams: global recommendations and guidelines. 2007.

²⁶ Doherty J, Couper I, Fonn S. Will Clinical associates be effective for South Africa? S Afr Med J. 2012 Nov;102(11 Pt 1):833–5

²⁷ Moodley S V, Wolvaardt L, Louw M, Hugo J. Practice intentions of clinical associate students at the University of Pretoria, South Africa. Rural Remote Health. 2014;14(2381):1–12.

²⁸ Ibid.

the rest of the facility. Experienced clinical associates are currently staffing emergency departments, where medical practitioners are readily available for support and advise. This approach has been implemented with great success in other countries.

Lack of specific skills in underserved and rural areas

One of the preventable causes of maternal mortality is complications of anaesthesia during caesarean section operations. The lack of medical practitioners with sufficient experience in the field of anaesthesia in some rural district hospitals contributes to unnecessary anaesthetic deaths in these facilities. One possible solution is to provide clinical associates with further training (clinically based or honours degree) in anaesthetics. A similar approach can be adopted for other critical skills. Where clinical associates function in these areas, the capacity of clinics will be increased. The relevant members of the district specialist team can then supervise the clinical associates with advanced skills. It can be reasonably assumed that such clinical associates will be more likely to remain in rural facilities than experienced medical practitioners.

Growing burden of chronic and non-communicable diseases

The need for chronic care is growing exponentially due to new eligibility guidelines for ART (same-day initiation as well as universal test and treat), the increase in people living with HIV, and the expanding epidemics of TB and non-communicable diseases (NCDs). Population growth also adds to an increase in the need for healthcare services in all levels of care and all the various disciplines. The South African public healthcare sector is therefore in a situation where the need for health care is increasing while the healthcare budget cannot provide for an increase in personnel to provide more services.

When clinical associates are added to chronic care teams, they can treat the majority of the patients according to standard protocols. This will free up medical practitioners to focus on caring for patients with more complex conditions such as end-organ damage, e.g. renal failure in diabetic patients. Clinical associates can conduct all the standard routine care for TB and HIV infected patients and free up medical practitioners to focus on patients with serious side effects, treatment failure, drug-resistant disease and acute opportunistic infections. These roles are similar to, and complement that of, the primary healthcare nurses in these services.

Clinical associates in the ward-based outreach teams can provide high-quality care through clinical support provided in these teams, ensuring continuity of care.

Financial benefits of clinical associates

The Department of Health in several provinces has instituted moratoriums on the appointment of new personnel, due to budgetary constraints. Human resource costs, such as salaries, is one of the drivers of over-expenditure on provincial health budgets. Clinical associates are a cost-effective cadre of healthcare workers who can deliver quality clinical services as part of a team led by medical practitioners. As shown in the scenarios in Appendix 3, the introduction of clinical associates into clinical teams can lead to a cost savings of up to 21% in HR expenditure for medical staff.

Length of training and scalability

The relatively short duration of training (three years) results in a lower cost of training (approximately 40% of what it costs to train medical practitioners)²⁹. See Appendix 1 for tables and cost comparisons for

²⁹ Hamm, J., van Bodegraven, P., Bac, M. & Louw, J.M. 2016. Cost effectiveness of Clinical associates : A case study for the Mpumalanga province in South Africa. *African Journal of Primary Healthcare & Family Medicine*. 8(1):1–6. DOI: 10.4102/phcfm.v8i1.1218.

training. It also means the production of clinical associates can be increased within a relatively short space of time to ensure a quicker return on investment. This is in stark contrast to the enormous amount of funding and long lead-time needed to start a new medical school.

Budgetary constraints on human resources for health

Clinical associates are cost-effective members of a clinical team led by medical practitioners. Transforming a doctors-only team to a mixed team of clinical associates and doctors can result in savings in human resource expenditure of between 7% and 21%, depending on the composition of the team.

Cost of training clinicians for primary care

As demonstrated in Appendix 1, the average cost for a sponsor to train one clinical associate student for the 3-year bachelor degree is R316 770. Compare this to the average cost to train one medical student for a 6-year bachelor degree at R737 719. Thus 2.3 clinical associates can be trained for the same cost as one medical practitioner.

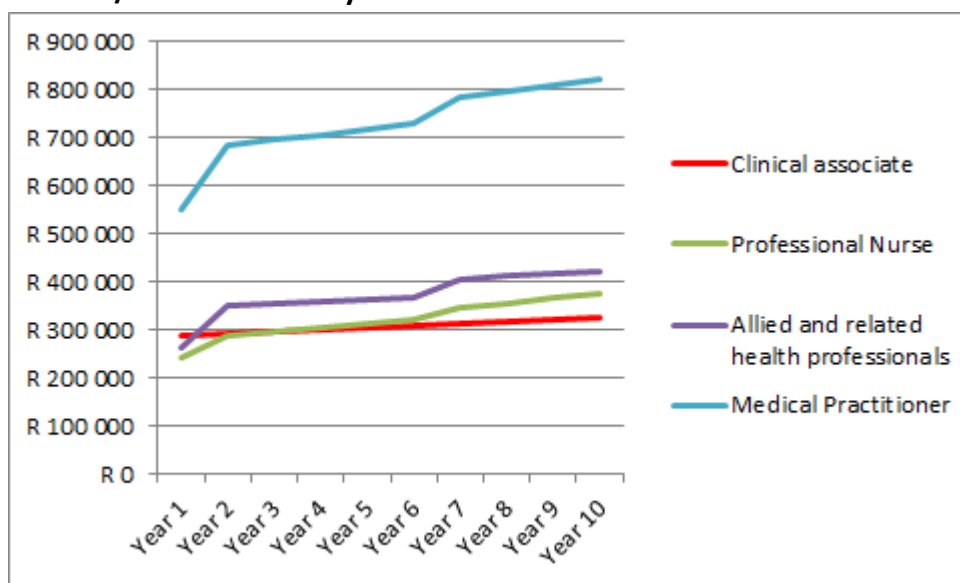
Costs of employment

The 2016/17 average annual salary of a clinical associate, with benefits, (total cost to company over the first ten years of service) is R306 259. Compared to the average salary of a medical practitioner which, over the first ten years of service, is R729 786 (see Appendix 2). The tables demonstrate that an employer could employ 2.4 clinical associates for the same cost as one medical practitioner. Considering the amount of responsibility that a clinical associate carries and the work that they perform, the salaries used in these calculations may well not be optimal.

The salaries of four medical professionals are compared in Graph 1 with the cost-saving difference of a medical officer salary compared to a clinical associate salary.

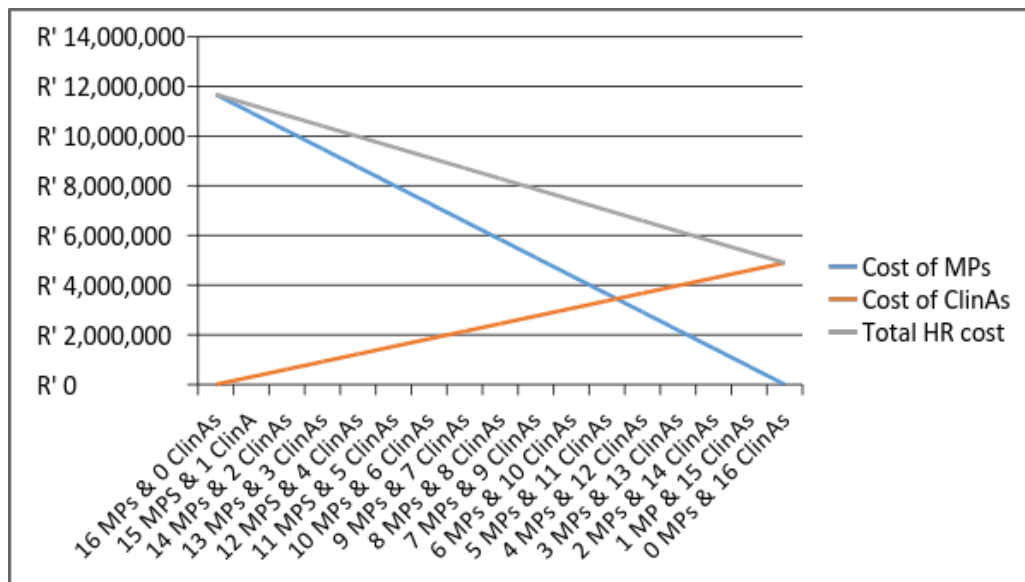
Graph 1 also demonstrates that the clinical associate profession currently does not have a career path related to salary progression, as do other established health professions. The graph includes allied and related health professions, with 24 different health professions such as physiotherapists, occupational therapy, speech therapists, dieticians, radiographers and medical technologists.

Graph 1: Comparison of the typical total annual cost of employing four different medical professionals over the first 10 years post qualification, including the community service year where applicable. Based on 2016/2017 DPSA salary scales.



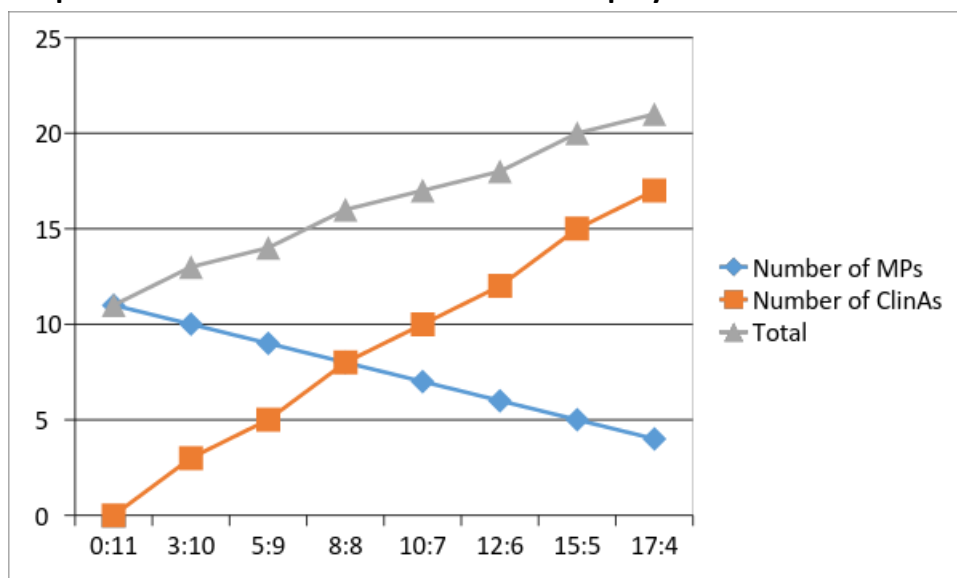
The cost of employing a mixed team of 16 clinicians (medical practitioners and clinical associates) is shown in Graph 2 below. The graph demonstrates the decrease in human resource costs as the number of clinical associates in the team increases, given the current salary structure for clinical associates and medical practitioners.

Graph 2: Annual cost of employing a mixed team of 16 clinicians



Alternatively, the number of clinicians employed on a fixed budget of R8.3 million can be calculated. As the number of clinical associates in the team increases, the total number of clinicians in the team also increases without extra cost to the HR budget (when calculating using the current salary structure for clinical associates and medical practitioners).

Graph 3: Number of clinicians that can be employed on an annual HR budget of approx. R 8.3 million³⁰



³⁰ Hamm, J., van Bodegraven, P., Bac, M. & Louw, J.M. 2016. Cost effectiveness of clinical associates: A case study for the Mpumalanga province in South Africa. African Journal of Primary Healthcare & Family Medicine. 8(1):1–6. DOI:

Therefore, it can be argued that in a situation where the medical practitioners in a particular service or district are too few to render all the necessary services, capacity can be increased by appointing clinical associates, using available funding from some of the vacant medical officer posts. The number of clinical associates appointed can be increased (e.g. 2 or 3 clinical associates for every one vacant medical practitioner post) without any or only a slight increase in the HR cost, given the current salary structure for clinical associates and medical practitioners.

However, in the face of budgetary constraints, expenditure can be contained by appointing the same number of clinical associates as there are available vacant medical officer posts. Where the need is to both increase capacity and decrease costs, a middle road can be followed by appointing double the number of clinical associates to available vacant medical officer posts. There will not be a reduction in patient care; as already demonstrated, the medical officer-clinical associate team is as capable, if not more so, in healthcare delivery. One medical practitioner can supervise two or three clinical associates, making a team of four clinicians, which is more cost-effective than a team of two or three medical officers.

Managers and officials in various levels of both district and provincial health will need to decide how to implement these strategies. The district health management team will most likely be best placed to facilitate and guide the addition of clinical associates to clinician teams. The optimal ratio of medical practitioners to clinical associates will depend on factors such as the level of experience and seniority of the clinical associates and medical practitioners, the complexity of the tasks in the specific service, the financial resources available, and the size of the clinical workload. The workload is determined by the size of the population to be served and the morbidity patterns in that population, compared to the number of clinicians available.

As demonstrated in the scenarios analysed in Appendix 3, adding clinical associates to teams of clinicians can result in between 7% and 21% savings in human resource costs; simultaneously providing more human resources to deliver healthcare services.

Managers and politicians need to consider the cost-effectiveness of adding clinical associates to teams of clinicians for the future healthcare system.

Effectiveness

The effectiveness of the recommended strategies depends on task sharing 50% or more of the current workload of medical practitioners with clinical associates, without loss of quality or care. The World Health Organisation supports such task-sharing with studies indicating mid-level health workers provide care as effective as medical practitioners³¹.

Further benefits of clinical associates

Contribution to social transformation

The majority of clinical associate students are recruited from rural disadvantaged communities, and virtually all are employed after graduating, representing a substantial economic impact on their families and their communities. Many clinical associates live and work in rural, underserved and impoverished

10.4102/phcfm.v8i1.1218.

³¹ Reference: Quality of care provided by mid-level health workers: systematic review and meta-analysis

Zohra S Lassi a, Giorgio Cometto b, Luis Huicho c & Zulfiqar A Bhutta a., Bulletin of the World Health Organization 2013;91:824-8331. doi: <http://dx.doi.org/10.2471/BLT.13.118786>

communities. They contribute to the economy of these communities not only through the healthcare service they provide but also through the money they spend in the local economy. Increasing the number of trained and employed clinical associates will help address youth unemployment, provide access to transformative higher education, and reduce the high levels of inequality in South Africa.

Millennium development goals

South Africa has achieved reductions in the under-five mortality rate (from 59 to 34.3 per 1000 live births) and the infant mortality rate (from 54 to 23.6 per 1000 live births) from 1994 to 2013. The maternal mortality ratio decreased from 270 deaths per 100,000 live births in 2010 to 141 in 2013, though this is still much higher than the goal (MDG5) of 38:100,000. Clinical associates would provide a boost in the human resources for health needed to provide improved maternal and child health services in South Africa³².

Sustainable Development Goals (SDGs)

The Sustainable Development Goals (SDGs), otherwise known as the Global Goals, are a universal call to action to end poverty, protect the planet, and ensure that all people enjoy peace and prosperity; and serve as the successors to the Millennium Development Goals. SDG3 makes a bold commitment to end the epidemics of AIDS, tuberculosis, malaria and other communicable diseases by 2030. The aim is to achieve universal health coverage and provide access to safe and affordable medicines and vaccines for all. The impact of clinical associates, outlined in this report, can contribute significantly to these goals.

South African goals

South Africa's National Strategic Plan (NSP) on HIV, TB and STIs 2017-2022 directs and coordinates national efforts and ensures that interventions are relevant, based on evidence and guided by proven methods. As this particular NSP comes at a critical stage in South Africa's protracted efforts to overcome HIV, TB, and STIs; it will be important to utilise all available human resources effectively to support these efforts. Clinical associates can help achieve the following targets of the national strategic plan by 2022:

- Prevention targets
 - Reduce new infections of HIV from 270 000 to less than 100 000 per year
 - Reduce new TB infections from 450 000 to less than 315 000 per year
 - Reduce new STI infections and identify asymptomatic infections
- HIV Treatment targets
 - 90% of PLHIV know their status
 - 90% of people who know their status receive ART
 - 90% of those on ART have a suppressed viral load
- TB Treatment targets
 - Diagnose 90% of people with TB (including key populations such as people living with HIV, mineworkers and inmates in correctional facilities)
 - Treat 100% of people with TB
 - 90% success treating drug-susceptible TB
 - 75% success treating drug-resistant TB
 - Decrease TB mortality by 30%
- Reach all key and vulnerable populations with comprehensive, customised and targeted interventions
 - Consultations with adolescent girls and young women (AGYW), men who have sex with men (MSM), sex workers, and IV drug users (IDUs)

³² Millennium Development Goals. Statistics South Africa. 2015.
(http://www.statssa.gov.za/MDG/MDG_Country%20Report_Final30Sep2015.pdf)

- Address social and structural drivers of HIV and TB infection and STIs
 - Provide patient and family education, counselling and community health services

Clinical associates can contribute meaningfully to meeting WHO and South Africa’s healthcare-related goals. More specifically, they help to increase access to quality health care in rural and underserved communities.

1D. Employment and Plans for Clinical Associates in the South African Healthcare Workforce

Considering the benefits explained in the report thus far, the training and employment of clinical associates can be a cost-effective strategy for provincial departments of health to meet the demand for healthcare workers in rural areas. The use of clinical associates is only one in a range of strategies to tackle the shortage of healthcare workers.³³

Maintaining a database of the training and employment of clinical associates will help to guide policy and the utilisation of the profession.

To increase the number of clinical associates, effective teaching platforms are necessary. Clinical associates need to be appointed in the various training disciplines to serve as role models and teachers of the next generation of clinical associates.

Number of clinical associates required for South Africa

The table below shows the initial minimum number of clinical associates needed in the public health service to make a significant impact on service delivery, given the current healthcare structures in the country. These numbers are based on the preliminary output from the WISN exercise.

Table 7: Estimated number of clinical associates needed in the South African healthcare service to achieve UHC by 2030

| Proposed facility/service | Number of facilities/services | Average no. of clinical associates needed per facility/service | Total |
|--|-------------------------------|--|-------|
| VMMC units | 250 | 3 | 750 |
| Employed by NHI contracted medical practitioners | 2000 | 1 | 2000 |
| WBPHCOTs | 4200 | 1 | 4200 |
| CHCs | 250 | 6 | 1500 |

³³ World Health Organisation. Task shifting: rational redistribution of tasks among health workforce teams: global recommendations and guidelines. 2007.

| | | | |
|---|-----|----|--------|
| District hospitals (very small < 50 beds) | 24 | 6 | 144 |
| District hospitals (50-150 beds - small) | 101 | 10 | 1010 |
| District hospitals (150-300 beds - medium) | 78 | 15 | 1170 |
| District hospitals (300-600 beds - large) | 20 | 20 | 400 |
| Training hospitals which are not district hospitals | 10 | 10 | 100 |
| Academia | 8 | 12 | 96 |
| Total | | | 11 370 |

Clinical associates should not be viewed as an “investment free” solution that will tolerate poor working and living conditions and low salaries.³⁴ To improve retention it is important to keep investing in clinical associates by ensuring good working and living conditions, good clinical supervision (as stipulated by the HPCSA), appropriate remuneration, and opportunities for training and career progression.³⁵

South Africa has a shortage of generalist medical practitioners, and this is especially acute in the public sector. The addition of clinical associates to medical teams in the public service will substantially increase the services rendered, providing relief to overworked medical practitioners as well as to the continuing “brain drain” still faced by our country, but only if they are respected and treated as a valuable addition to the healthcare profession.

Most recently, the three universities training clinical associates produced 126 new graduates in 2015, 150 in 2016 and 143 in 2017 (see Table 8 below). The total number of graduates who completed training from 2010 to 2017 is 937. If ten universities would be training clinical associates by 2022 and each university could produce approximately 150 clinical associates per annum, 11 500 clinical associates would have been trained by 2030. Considering an estimated attrition of 2% per annum, 10 500 clinical associates would be practising by 2030 in this scenario.

During this period, it is expected that the South African population will grow and the prevalent epidemics increase rather than decrease. New hospitals, CHCs and PHC clinics will be needed to deal with the increasing numbers. Therefore, there is currently an urgent need to substantially increase the training of

³⁴ Bangdiwala SI, Fonn S, Okoye O, Tollman S. Workforce resources for health in developing countries. *Public Health Rev.* 2010;32(1):296–318

³⁵ WHO. Task shifting to tackle health worker shortages. Geneva; 2007.

clinical associates, at no risk of over-production for the profession.

Table 8: Number of clinical associate graduates since 2010

| Total Graduates per University | | | | | | | | | |
|---------------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|---------------|
| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | Totals |
| Walter Sisulu University | 23 | 24 | 21 | 31 | 15 | 36 | 31 | 38 | 219 |
| University of the Witwatersrand | 0 | 25 | 27 | 52 | 50 | 22 | 56 | 48 | 280 |
| University of Pretoria | 0 | 44 | 81 | 65 | 60 | 68 | 63 | 57 | 438 |
| Total | 23 | 93 | 129 | 148 | 125 | 126 | 150 | 143 | 937 |

CHAPTER TWO: THE ROLE OF CLINICAL ASSOCIATES IN SOUTH AFRICA'S HEALTHCARE SYSTEM

2A. Current Roles and Responsibilities

National Exit Outcomes

Clinical associates support and contribute to teams in district healthcare. In 2010 the National Department of Health described the role and responsibilities of the clinical associate for medical practice in hospitals based on the 11 exit outcomes of the academic degree.³⁶

Table 9: National Department of Health roles/responsibilities of clinical associates related to 11 exit outcomes used by academic training programmes as learning objectives

| 11 Exit outcomes, roles and responsibilities of clinical associates | Percentage of roles and responsibilities performed at district hospitals, recommended by NDOH |
|---|---|
| 1. Perform a patient-centred consultation across all ages in a district hospital | 20% |
| 2. Apply clinical reasoning in the assessment and management of patients | 20% |
| 3. Perform investigative and therapeutic procedures appropriate for a district hospital | 15% |
| 4. Prescribe appropriate medication within scope of practice | 15% |
| 5. Provide emergency care | 10% |
| 6. Facilitate communication and provide basic counselling | 10% |
| 7. Function as a productive member of the healthcare team | <i>Ongoing</i> |
| 8. Produce and maintain clinical records | <i>Ongoing</i> |
| 9. Function as an ethical practitioner | <i>Ongoing</i> |
| 10. Demonstrate ongoing learning in clinical practice | <i>Ongoing</i> |
| 11. Integrate understanding of family, community and health system in practice | 10% |

Since inception clinical associates have been employed successfully in regional hospitals, tertiary academic hospitals, clinics staffed with medical practitioners, and non-governmental health organisations. They also work in private hospitals, doctors' rooms, private clinics and community-oriented primary care practices. While clinical associates are not registered to conduct independent practice, they do act dependently and independently with the mentorship and supervision of their supervising medical practitioner. Given that they are competent and trained to perform a variety of medical duties, this supervision is side-by-side shared clinical work in the same department and also through telephonic or other electronic communication. The scope of practice, signed by the Minister of Health in October 2016, allows clinical associates to perform "any act delegated to him or her by their supervising medical practitioner in

³⁶ National Department of Health Directive: Clinical associate Job Description. 10 December 2010

accordance with the education, training, and experience of the clinical associate.”

Clinical associates are educated in the practice of family medicine and primary care in a three-year bachelor degree with an emphasis on diagnosing and managing common medical conditions. They are trained in over 180 different medical skills to competently perform diagnostic and therapeutic procedures. According to their scope of practice, clinical associates can prescribe medicines up to Schedule IV without a medical practitioner’s counter-signature, and higher schedule medication for an emergency patient. The only requirement is for the supervising medical practitioner’s name to be on the prescription, not counter-signature. If they obtain a medical practitioner’s counter-signature, they can prescribe appropriate higher schedule prescriptions.³⁷ Currently, the law does not reflect the newly signed scope of practice for clinical associate prescription rights. Steps are in place for a change in the law to allow pharmacists to fill prescriptions written by clinical associates in accordance with their training and the recently approved scope of practice. Until this process is finalised, the efficiency of clinical associates is limited, which creates a bottleneck in the co-signing of prescriptions and delays in service to patients.

Clinical associates can strengthen primary healthcare teams by adding skills and increasing capacity. They are a flexible cadre of healthcare workers who can be appointed in roles for which they have the appropriate training, experience and supervision. In these positions, they are making a significant contribution to healthcare service delivery. Where they are added to clinical teams, waiting times decrease and service delivery improves.³⁸ Clinical associates reportedly conduct approximately 20-40 consultations per day in emergency departments and outpatient departments. In ARV clinics they can see many more patients per day. A conservative estimate of surveys done from 2013 to 2015 shows that each clinical associate in a rural health service can conduct approximately 5 000 consultations per year^{39 40}. They perform circumcisions in a similar time to medical practitioners (approximately 15 minutes per circumcison), with comparable outcomes⁴¹.

Entrustable Professional Activities (EPAs) and Competencies

The National Department of Health has suggested a new structure for all health professions to measure and achieve competencies for academic training and clinical practice through the use of Entrustable Professional Activities (EPAs). Several countries already employ the use of EPAs as a means to establish roles and responsibilities for clinicians in the clinical setting. The CanMEDS are a well-known competency-based training framework for establishing professional roles for physicians in Canada’s healthcare setting⁴².

Since 2014 HPCSA has promoted professional roles as a means to guide training and graduate expectations based on competencies in the document titled “Core competencies for undergraduate students in clinical associate, dentistry and medical teaching and learning programmes in South Africa”. Clinical associate

³⁷ Regulations Defining the Scope of Practice of clinical associates, 11 November 2016

³⁸ Bac, M., Hamm, J., van Bodegraven, P., Pater, B. & Louw, J. 2017. A new healthcare profession in rural district hospitals: a case study of the introduction of Clinical associates in Shongwe hospital. *South African Family Practice*. 59(1):14–17. DOI: 10.1080/20786190.2016.1248144.

³⁹ Pater, B. The position and functioning of Clinical associates in four rural district hospitals in South Africa. Bachelor’s dissertation. Erasmus University. Rotterdam. 2014.

⁴⁰ Keyner, S. Clinical associates in the Fight against HIV in South Africa. Master’s dissertation. Erasmus University. Rotterdam. 2016.

⁴¹ The Quality of Voluntary Medical Male Circumcision done by Clinical associates in Tshwane, South Africa, S. Ngcobo, L. Wolvaardt, M. Bac, E. Webb. The article is submitted to *PLOS Medicine*; awaiting outcome.

⁴² CanMEDS 2015 Physician Competency Framework, Royal College of Physicians and Surgeons of Canada, Jason R. Frank, Linda Snell, Jonathan Sherbino. Website to access document: <http://www.royalcollege.ca/rcsite/documents/canmeds/canmeds-full-framework-e.pdf>

training and practice incorporates these seven roles:

1. HEALTHCARE PRACTITIONERS

- 1.1 Function effectively as entry-level healthcare practitioners, integrating all graduate attribute roles to provide optimal, ethical, comprehensive and patient/client-centred care in a plurality of health and social contexts
- 1.2 Acquire and maintain knowledge, skills, attitudes and character appropriate to their practice
- 1.3 Perform comprehensive assessments of patients/clients
- 1.4 Use preventive, promotive, therapeutic and rehabilitative interventions effectively
- 1.5 Demonstrate efficient and appropriate use of procedural skills, both diagnostic and therapeutic
- 1.6 Seek appropriate consultation from other healthcare professionals, recognising the limits of their own and others' expertise

2. COMMUNICATOR

- 2.1 Develop rapport, trust and ethical therapeutic relationships with patients, families and communities from different cultural backgrounds
- 2.2 Accurately elicit and synthesise relevant information and perspectives of patients and families, communities, colleagues and other professionals
- 2.3 Convey relevant information and explanations accurately and cohesively to patients, families, communities, colleagues and other professionals as well as statutory and professional bodies
- 2.4 Develop a common understanding of issues, problems and plans with patients/clients, families, communities, colleagues and other professionals, to develop a shared plan of care/action
- 2.5 Convey effective and accurate oral and written information about a clinical encounter

3. COLLABORATOR

- 3.1 Participate effectively and appropriately in multicultural, interprofessional and trans-professional teams, as well as teams in other contexts (the community included)
- 3.2 Work effectively with other healthcare professionals to promote positive relationships and prevent, negotiate and resolve interpersonal conflict

4. LEAD & MANAGER

- 4.1 Participate in activities that contribute to the effectiveness of the healthcare organisations and systems in which they work
- 4.2 Manage their practice and career effectively
- 4.3 Utilise finite healthcare resources appropriately
- 4.4 Serve in administration and leadership roles, as appropriate
- 4.5 Provide effective health care to geographically defined communities

5. HEALTH ADVOCATE

- 5.1 Respond to individual patient health needs and related issues as part of holistic care
- 5.2 Respond to the health needs of the communities that they serve

6. SCHOLAR

- 6.1 Maintain and enhance professional competence through ongoing learning, both as healthcare professionals and as responsible citizens, locally and globally
- 6.2 Ask questions about practice, locate relevant evidence, critically evaluate and interpret information and sources, and consider the application of the information
- 6.3 Facilitate the learning of patients, families, students, other healthcare professionals, the public,

staff and others, as appropriate

7. PROFESSIONAL

7.1 Demonstrate commitment and accountability to their patients, other healthcare professions and society through ethical practice

7.2 Demonstrate a commitment to their patients, healthcare professionals and society through participation in profession-led self-regulation

The EPAs act in the same way and support the roles to provide a competency-based level of assessment and measure of the clinical associate graduate's knowledge, skill and attitude to meet the requirements of the profession. The clinical associate education programmes currently utilise 11 exit outcomes to measure a graduate's ability to be ready for professional practice, as listed above in Table 9.

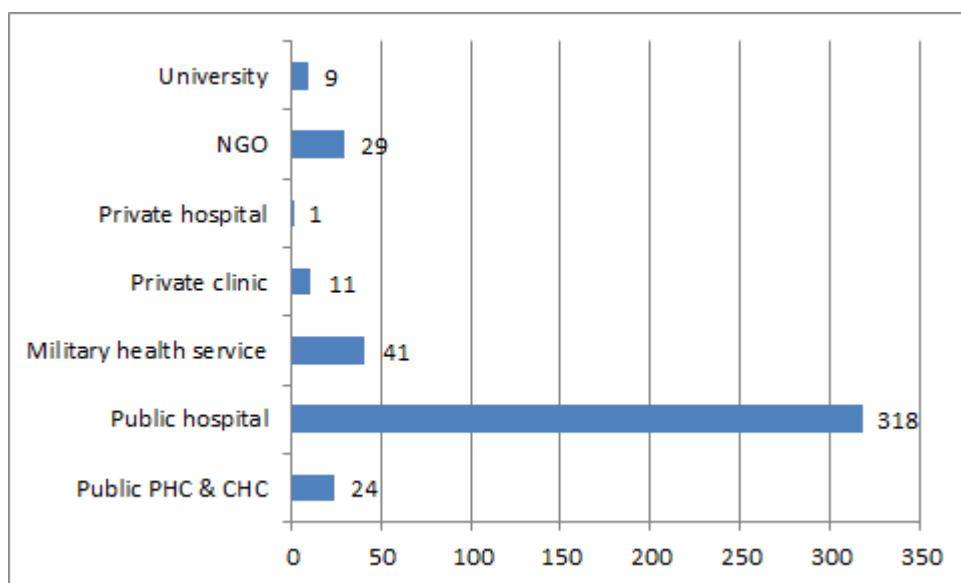
NDOH is promoting EPAs as the new model for learning objectives and clinical responsibilities for which an academic programme will train their health professionals. The six draft EPAs for clinical associates is proposed as follows, to replace the 11 exit outcomes:

1. **PERFORM PATIENT ASSESSMENT**
 - 1.1 Perform triage for all patient encounters
 - 1.2 Obtain a complete and/or focused patient history
 - 1.3 Perform a complete and/or focused physical examination
 - 1.4 Formulate a biopsychosocial patient assessment
2. **MANAGE PATIENTS COMPREHENSIVELY**
 - 2.1 Formulate a comprehensive patient management plan
 - 2.2 Prescribe appropriate medications
 - 2.3 Perform investigative and therapeutic procedures and interpret results
 - 2.4 Execute continuous patient care including complications, referrals, follow up, rehabilitative and palliative care as appropriate
3. **PROMOTE HEALTH**
 - 3.1 Foster individual health
 - 3.2 Foster community health
4. **FACILITATE COMMUNICATION AND COLLABORATION**
 - 4.1 Foster rapport, trust and ethical relationships with patients, families and communities
 - 4.2 Provide appropriate counselling
 - 4.3 Collaborate within a multidisciplinary healthcare team
5. **IMPROVE HEALTHCARE SERVICES**
 - 5.1 Produce and maintain clinical records to improve the quality of healthcare services
 - 5.2 Collect and analyse data to improve the quality of healthcare services
 - 5.3 Understand healthcare systems
6. **DEVELOP PROFESSIONALLY**
 - 6.1 Engage in continuous learning
 - 6.2 Practice professionalism
 - 6.3 Practice ethically

2B. Role of Clinical associates in District Hospitals

The majority of clinical associates are currently practising medicine in district hospitals. They are assigned to the following areas: out-patient departments, emergency departments, male and female general medical wards, paediatric wards, surgical departments, obstetrics departments and HIV clinics. A survey of 650 practising clinical associates was conducted in 2016. A total of 433 clinical associates responded to the survey, with the results in Chart 6. Eighty percent are employed by the Provincial Departments of Health. Ten percent are employed by NGO's, primarily performing male medical circumcisions in various clinics. Another 6-8% are working alongside medical practitioners in private community healthcare clinics, private practice or private hospitals. Around 3% are employed by Walter Sisulu University, the University of Pretoria and the University of the Witwatersrand as lecturers.⁴³

Chart 6: Place of employment of 433 clinical associates, study done in November 2016



Job description by department

Outpatient departments (OPD) and medical wards

The clinical associate role in the OPD is comparable to the medical officer. Clinical associates manage most patient complaints in this setting independently. On average they see 40 patients a day making diagnoses, comprehensive treatment plans, referrals, providing patient education and counselling. One medical practitioner can supervise three to four clinical associates to make efficient use of time and resources. The patient queue is managed well by the medical practitioner/clinical associate/nurse team in the OPD setting.

Clinical associates receive the majority of their training in the clinical setting, learning directly from patient interactions, supervised by clinical and academic staff. Given the South African healthcare context, clinical associates learn early and quickly about all aspects of HIV patient care. This makes them an ideal medical professional to be placed in the OPD and medical wards, where up to 60-70% of patients are HIV positive.

⁴³ Distribution of Clinical associates in South Africa. Presentation by Daniela Goeieman. Human Resources for the South African Health System Conference. November 2016

The role of an experienced clinical associate in the medical wards can be placed between that of an intern and a registrar. Experienced clinical associates can, with mentorship and appropriate supervision, conduct ward rounds independently. Their clinical training prepares them to manage multiple-system complaints and integrate a treatment plan with appropriate diagnostic testing, therapeutic procedures, and mitigation of complications of the ward patient. International data suggests the employment of clinical associates (mid-level health workers) and one medical practitioner on a medical ward reduces hospital length of stay while improving patient services and outcomes.⁴⁴

Emergency Department

Clinical associates are ideally trained to work in the emergency departments of a hospital. One-fourth of their theoretical and clinical training is based on emergency medicine with skills such as airway and breathing management, resuscitation, suturing and placement of intercostal drains. One medical practitioner and three to four clinical associates, with nursing and other allied staff, can support and manage a busy emergency department. Clinical associates are trained and competent to lead resuscitation, employing the use of a manual defibrillator and intubating a patient as necessary. As quoted by a registrar at Middelburg Hospital: “In casualties they assist with triage and attending to assault cases for suturing, applying POP and splints, they help to put up intravenous lines for adults and babies as it can take forever to try and put up a drip for a child, they would be busy while the medical practitioner is attending to other patients depending on the baby’s clinical picture. They are also helpful during resuscitation.”

OB/GYN

In obstetrics and gynaecology, they assist with admitting new patients, with ward rounds, deliveries and providing common procedures. They are most effective as the required assistant at major operations e.g. caesarian sections, laparotomy for ectopic pregnancies and other surgical procedures. They prepare patients for theatre and perform the evacuation of the uterus on their own. The clinical associate has been accepted to practise in the maternity ward and is now considered an integral part of the healthcare team in the district health system.

Paediatrics

Paediatric patients are seen daily by clinical associates in the various district hospitals where they are posted. The clinical associate is a valued team member for ward rounds, consultations, management decisions and routine procedures in improved and efficient patient care. This area of medicine has enormous potential for growth as they have been embraced by both patients and clinical staff. For example, a 2012 clinical associate graduate is managing the paediatrics wards at Taung District Hospital.

Surgery/Theatre

Clinical associates are uniquely trained to support the surgeon in theatre and manage the surgical wards. They are trained in the same model as the medical practitioner for medical problem solving, procedural skills and surgical techniques. Their scope of practice states: “being the required assistant at surgery.” Clinical associates are currently serving as the required assistant in theatre, performing minor procedures independently with mentorship, training and support from their supervising surgeon. WHO has supported the involvement of clinical associates (mid-level healthcare workers) in surgery since 2005 as stated in “the Global Initiative for Emergency and Essential Surgical Care to support low- and middle-income countries in their efforts to meet the need for emergency, anaesthesia, and surgical care in primary healthcare

⁴⁴ Mid-level health workers for delivery of essential health services - a global systematic review and country experiences. Global Health Workforce Alliance. (http://www.who.int/workforcealliance/knowledge/mlpreport_annexes/en/index.html.)

facilities.”⁴⁵ Clinical associates in South Africa have already made an impact on surgical care, with the potential to upscale to support surgeons in general practice and speciality surgical cases.⁴⁶

HIV/AIDS

South Africa has made tremendous strides to reduce the burden of disease due to HIV, with increased testing, initiation of ARVs and viral load reduction. Clinical associates have been part of this story for seven years, as many are employed in ARV clinics in district hospitals helping to achieve the Sustainable Development Goals (SDGs). With increased numbers, this cadre can make a significant contribution to HIV testing and antiretroviral initiation and maintenance of this chronic disease. Their training already has HIV medicine as a foundation, working with HIV positive patients in the clinical setting since year one, as students in their clinical practical rotations.

Table 10: Common tasks performed by clinical associates by department

| Clinical unit/facility | Tasks |
|------------------------|--|
| OPD | <ul style="list-style-type: none"> Consultations (including chronic care) Patient education Collection of venous blood samples Minor procedures Admissions Ordering investigations (including X-Rays) Referrals and booking appointments for patients |
| Wards | <ul style="list-style-type: none"> Clerking of new admissions and follow-up Ward rounds Collection of venous blood samples Lumbar puncture, blood transfusion and other diagnostic and therapeutic procedures Tracing and interpreting test results IV lines – insertion and management Patient discharge Referrals and booking appointments for patients Ordering and interpreting investigations Urinary catheterisation Pleural taps and other procedures |
| Emergency Department | <ul style="list-style-type: none"> Triage Emergency consultations Resuscitations Suturing Lumbar puncture and other small procedures Collection of venous blood samples IV lines Patient admission and discharge Referrals and booking appointments for patients Ordering investigations |

⁴⁵ Carolyn Mahoney and Fiona Fleck report. Meeting the need for surgery. Surgical provision falls far short of what is needed in developing countries, but recent initiatives aim to correct this deficit. Bulletin of the World Health Organization 2016;94:163-164. doi: <http://dx.doi.org/10.2471/BLT.16.020316>

⁴⁶ Bac, M., Hamm, J., van Bodegraven, P., Pater, B. & Louw, J. 2017. A new healthcare profession in rural district hospitals: a case study of the introduction of Clinical associates in Shongwe hospital. South African Family Practice. 59(1):14–17. DOI: 10.1080/20786190.2016.1248144

| | |
|-------------------|--|
| | Urinary catheterisation Intercostal drains & pleural taps Splints, POPs |
| Theatre (surgery) | Assisting with major surgery, acting as first assist Assisting with anaesthesia, spinal anaesthesia IV lines Circumcisions, Incision and drainage, and other minor procedures |
| ARV clinic | Evaluate new patients, test and treat, initiate treatment Follow up consultations Adherence training / education / counselling |
| Maternity | Assisting with C-sections, being the required assistant Patient consultations and management Deliveries Counselling Manual vacuum aspiration |
| Paediatrics | Ward Rounds Patient consultation, management Admitting, referrals, discharge IV lines, bloods, lumbar puncture Assist in minor procedures |
| VMMC | Circumcisions Team leader |

2C. Role of Clinical Associates in Primary Health Care (PHC) and National Health Insurance (NHI)

South Africa Vision for Health 2030

Vision for Health 2030 focuses on reducing the quadruple burden of disease which contributes significantly to the morbidity and mortality rate in South Africa:

1. HIV/AIDS, tuberculosis and sexually transmitted diseases
2. Maternal and child mortality
3. Non-communicable diseases
4. Violence, injuries and trauma

To accomplish this reduction, NDOH has a very specific and radically transformed health system in mind for 2030, which will embody an unambiguous vision of universal access to health. This implies that not only must the next HRH strategy attempt to resolve current HRH challenges, but that it should also lay the HRH foundations for the future health system.

With the roll-out of NHI across South Africa, it is essential that clinical associates are part of the human resource planning and implementation of the workforce. Of the 15 healthcare services to be offered through the NHI, clinical associates are currently trained to perform or contribute towards 11 of those medical services.

Appointment of Clinical Associates to Implement National Health Insurance (NHI) and Primary Health Care (PHC)

As outlined in the NHI White Paper, NHI is intended to move South Africa towards universal health coverage (UHC) by ensuring that the population has access to quality health services and that it does not result in financial hardships for individuals and their families. As Human Resources for Health (HRH) are the heartbeat of any health system, efficient utilisation of available HRH will be critical to the success of NHI in the provision of health care for all via UHC. Incorporating clinical associates into the HRH strategy for NHI will enhance the performance of the workforce in the provision of face-to-face, person-to-person care, irrespective of their socioeconomic status.

The infusion of PHC-centred doctors trained via the Mandela-Castro Collaboration Program in Cuba provides an opportunity to utilise clinical associates strategically in the context of NHI. Clinical associates could work with Cuba-trained doctors in effective teams providing clinical support to community health workers (CHWs). Clinical associates are ideally suited to join CHWs on home visits to households where clinical care is needed, e.g. following up patients after discharge from inpatient facilities or visiting the chronically ill. With their clinical skills, clinical associates can guide referrals to appropriate healthcare services and facilitate access where barriers exist. They are ideally suited to be the link between facility-based and community-based services. When visiting a severely ill patient in the community, the clinical associate can communicate concisely with the hospital-based clinical team to facilitate the best decisions for further acute or chronic care.

Clinical associates would strengthen district health systems by increasing access to care across the continuum. By reaching out from district hospitals and other facilities into the communities those facilities serve, clinical associates would strengthen South Africa's response to addressing pressing healthcare needs and priorities, including the UNAIDS 90-90-90 HIV goals and non-communicable diseases (NCDs).

Clinical associates would be able to enhance the performance of the municipal Ward-based Primary Healthcare Outreach Teams (WBPHCOTs), which form a pivotal part of South Africa's PHC re-engineering strategy. Experienced clinical associates could lead the outreach teams where qualified nurses are not available. They can support CHWs who assess the status of individuals in the households; provide health promotion education; identify those in need of preventive, curative or rehabilitative services; provide health-related counselling; and refer those in need of services to the relevant PHC facility.

Clinical associates also have the skills to provide clinical support to WBPHCOTs and link the teams to hospitals to ensure that individuals needing advanced care are correctly referred to secondary and tertiary care. Clinical associates could provide clinical support and leadership where it is most needed, e.g. in communities where enrolled nurses instead of professional nurses are being installed as team leaders in WBPHCOTs. Clinical associates could support multiple WBPHCOTs in a given district, and advance their PHC skills and experience through NHI appointments and advanced training in PHC.

Because clinical associates are trained in the medical model and have clinical reasoning skills, they can provide much needed clinical support to CHWs and serve as WBPHCOTsteam leaders. Combined with other clinical services, the clinical associate can serve as the link between home-based care and the various facility-based clinical services. Examples include:

- A clinical associate can identify the most appropriate services to which patients under the care of CHWs need to be referred, e.g. which patients should go to the hospital for further investigations or

admission and which ones can be helped at the local clinic.

- A clinical associate can conduct home visits to follow up patients discharged from the hospital but who are still in need of monitoring.
- Clinical associates can perform all necessary history and physical exams for home visits, e.g. chronic care monitoring.
- Well versed in patient education, clinical associates can provide home-based counselling for patients and their families.
- With their hypo-theoretical deductive reasoning training, clinical associates are in the position to make clinical decisions at the patient’s home for appropriate referrals.

Table 11: National Health Insurance medical services clinical associates are trained to perform

| | | |
|-------|---|-----|
| i. | Preventive, community outreach and promotion services | Yes |
| ii. | Reproductive health services | Yes |
| iii. | Maternal health services | Yes |
| iv. | Paediatric and child health services | Yes |
| v. | HIV and AIDS and tuberculosis services | Yes |
| vi. | Health counselling and testing services | Yes |
| vii. | Chronic disease management services | Yes |
| viii. | Optometry services | No |
| ix. | Speech and hearing services | No |
| x. | Mental health services including substance abuse | Yes |
| xi. | Oral health services | No |
| xii. | Emergency medical services | Yes |
| xiii. | Prescription medicines | Yes |
| xiv. | Rehabilitation care | Yes |
| xv. | Palliative services | Yes |

Clinical associates have the skills necessary to staff the proposed NHI, particularly to serve people in socially disadvantaged areas. This will support capacity building and mentorship, strengthen the use of clinical guidelines and protocols, and advance the use of information to improve health outcomes. Clinical associates would also be able to contribute to a reduction in institutional maternal and neonatal mortality rates, if included in the District Clinical Specialist Teams (DCSTs). According to the NHI White Paper, a DCST should be located in each district of South Africa and consist of a family physician, a primary healthcare nurse, an obstetrician and gynaecologist, an advanced midwife, a paediatrician and a paediatric nurse. An anaesthetist should be included in a role that is expanded to oversee emergency medical and perioperative care.

It is acknowledged that it will not be possible to appoint fully staffed DCSTs in all districts in the short term. The NHI White Paper suggests a minimum team would be necessary, consisting of one of two options:

1. A nurse-doctor dyad from a single discipline (i.e. family physician and PHC nurse; OR obstetrician and gynaecologist, and advanced midwife; OR paediatrician and paediatric nurse). The presence of any dyad constitutes a minimal team, but a team must have both a doctor and a nurse from the same discipline. This option is preferred and feasible when both the nurse and doctor in a single discipline can be appointed within a district.
2. A family physician and PHC nurse, plus advanced midwife or paediatric nurse on site in the district, and an obstetrician or paediatrician providing support from a DCST in an adjacent district. When a district has the option to appoint a midwife or paediatric nurse without an obstetrician or paediatrician, this is only considered feasible where medical support for the nurse is available both from a family practitioner within the district and an obstetrician or paediatrician respectively from outside the district.

In cases where there is a lack of qualified recommended staff for the DCSTs (including the minimal staff options), clinical associates could help staff DCSTs. For example, if a PHC nurse is not available, a clinical associate could team up with a family physician in a dyad for that district. Clinical associates with public health training would also be able to ensure that issues of public health care are monitored.

Clinical associates can support the delivery of hospital-based services, expected to be made available through NHI at accredited facilities, including services provided through OPD units, day care services and inpatient admission in the following areas (list not exhaustive):

- Emergency medicine
- Internal medicine (including but not restricted to cardiology and cardiovascular conditions, dermatology, neurology, infectious diseases)
- Nephrology and renal disease, including but not restricted to dialysis
- Oncology and cancer treatments
- Psychiatry
- Obstetrics and gynaecology
- Paediatrics and neonatology
- Surgery
- Orthopaedics

While clinical associates currently work mainly in district hospitals, they are well-suited to deliver the PHC health services expected to be available through NHI. Those services include prevention and health promotion; maternal, women and child health; HIV and tuberculosis; chronic non-communicable disease; and violence and injuries. Clinical associates could staff PHC clinics, to help ensure that these facilities achieve the National Core Standards for quality as envisioned in Operation Phakisa's Ideal Clinic Realisation project. Clinical associates can play a role in staffing PHC clinics, mainly where there is a shortage of medical practitioners, to help ensure they meet expected ideal clinic standards.

Clinical associates could also be appointed to support the provision of the multi-disciplinary and team-based facility, or non-facility, emergency care services. Clinical associates will ensure the clinical teams have the competencies to assess, stabilise and provide essential acute emergency care and clinical interventions for all presenting clients. They will help ensure that appropriate further care or referral is determined by the clinical condition of the patient.

Clinical associates could be appointed to support the Integrated School Health Programme (ISHP). Private healthcare providers with clinical associates on their staff may be more suitable for contracting through NHI to provide specific services.

The strengthening of PHC services, as envisioned for NHI, is critically dependent on improved management of clinics and community health centres at district level. Enabling clinical associates with decision-making responsibilities will facilitate service delivery in those areas.

Improving planning for HRH is an essential exercise to strengthen the health system and service delivery platform for NHI. Quality improvements being implemented in public sector health facilities, such as WHO's Workload Indicators for Staffing Needs (WISN) process, should consider the incorporation of clinical associates to assist with their goals.

NDOH, in consultation with the Department of Public Service and Administration (DPSA), should consider HR models for the healthcare system that are more agile and flexible. Models would be selected and utilised as informed by processes to move away from fixed ratios to identifying and filling the appropriate skills mix. Increased utilisation of clinical associates would provide more options for managers in the selection and development of health worker teams which are most efficient and cost-effective in providing needed services.

The establishment of the clinical associate cadre represents a significant investment in the healthcare system and provides new educational and professional opportunities for South Africa's young people. Utilising clinical associates will help ensure that NHI implementation is consistent with the global vision that health care should be a social investment, and will reflect the kind of society we wish to live in, one based on the values of justice, fairness and social solidarity.

CHAPTER THREE: SCOPE OF PRACTICE AND GUIDELINES FOR THE SUPERVISION OF CLINICAL ASSOCIATES

3A. Scope of Practice – Interpretation and Clarity of Clinical Practice

When looking at the general scope of practice for the medical profession, it is clear that medical practitioners in South Africa are allowed to practise medicine in the broadest sense of the word.⁴⁷ They are allowed to examine any patient, perform medical and clinical procedures, prescribe any medicine or medical service (as defined in the Medicines and Related Substances Act), manage the health of any patient, and perform any other act explicitly pertaining to the medical profession, based on their education and training.⁴⁸

The specific scope of practice of clinical associates, on the other hand, is more defined. It sets forth the responsibilities and acceptable professional acts for clinical associates. It defines the ethical practice and supervising guidelines appropriate for the profession. The scope of practice was signed by the Honourable Minister of Health and published in the government gazette of 11 November 2016. Clinical associates are required to practice with supervision, according to their level of education, training and experience. The clinical associate professional is permitted to (not an exhaustive list):

- Obtain a patient history and perform physical examinations
- Order and perform diagnostic and therapeutic procedures for common conditions in South Africa
- Perform, or order and interpret, investigations such as X-rays, ECG, urine tests, blood tests, etc.
- Interpret findings and diagnose emergency and common conditions
- Perform procedures under supervision, such as antenatal care, circumcisions, advanced life support, insertion of intercostal drains and assist in caesarean sections
- Develop, formulate, implement and monitor comprehensive management plans for common and important conditions
- Issue sick certificates up to three days
- Prescribe medicines for common and important conditions according to the primary healthcare level essential medicines list and up to schedule level IV, except in emergencies when they may prescribe appropriate drugs of higher schedules
- Assist at surgery
- Make admissions, referrals and discharges⁴⁹

Ethical rules guide these acts. In summary, the clinical associate is regulated to perform “any act delegated to him or her by the supervising medical practitioner in accordance with the education, training and experience of the clinical associate.”⁵⁰ It is important to note the continual reference to supervision, as the Conditions of Practice section states: “A clinical associate may not conduct an independent private practice. A clinical associate may not act as a *locum tenens* for a medical practitioner.” Furthermore, the

⁴⁷ Department of Health. Health professions act (act no. 56 OF 1974). Health professions council of South Africa. Regulations defining the scope of the profession of medicine. 6 March 2009

⁴⁸ Department of Health. Health professions act (act no. 56 OF 1974). Health professions council of South Africa. Regulations defining the scope of the profession of medicine. 6 March 2009

⁴⁹ Department of Health. Health professions act (Act no. 56 OF 1974). Regulations defining the scope of practice of clinical associates. 2016

⁵⁰ Department of Health. Health professions act (Act no. 56 OF 1974). Regulations defining the scope of practice of clinical associates. 2016

acts described in the regulation “must be performed under the supervision of a medical practitioner identified by the service in which the clinical associate is working and must be available to the clinical associate at all times.”

3B. Interpreting Supervision as Stated in the Scope of Practice

Supervision means the overseeing (synonyms: manage, mentor, teach, direct, handle, conduct, look after, be responsible for, preside over, keep an eye on, have or be in charge of) of the professional acts of a person registered as a clinical associate by a supervising registered medical practitioner (excluding interns). It includes the acceptance by that supervising registered medical practitioner of liability for such professional acts, with each level of supervision depicted as: direct, indirect, collaborative, assistive/ telephonic, and as needed (excluding acts of negligence on the part of the clinical associate and/or acts by the clinical associate falling outside the stipulations of HPCSA ethical rule 21).⁵¹

Clinical associates must take full responsibility for any acts of negligence on their part. Examples of such acts include performing procedures for which they have not been trained; and making inappropriate medical decisions, which includes actions which they know to be medically or ethically incorrect, even if given a direct order to do so by a doctor.

It is imperative the term “supervision of a clinical associate by a medical practitioner” includes clinical mentoring, teaching, coaching and collaboration in an advisory role; in addition to the obvious role of being a supervisor and being responsible for the acts of the clinical associate. The clinical associate profession is based on the premise of continual knowledge and skill attainment development by learning “on the job,” with mentoring from the medical practitioner. As the clinical associate’s competencies in areas of medicine develop, the supervision role could lessen. Inherent in the supervisor role must also be a collaboration and team approach between the supervising medical practitioner and the clinical associate. The two health professionals act as partners in patient management.

The recently signed scope of practice includes three paragraphs on the supervision of clinical associates relating to years of clinical practice. This section of the scope of practice requires clarity and interpretation for both professionals of the team to perform effectively.

Suggested interpretation of supervision for clinical associates

Supervision of clinical associates with 0-2 years of practice (“Direct supervision by medical practitioner, acts in a mentorship role”)

Examples of the practical implementation of paragraph (4) of the scope of practice: Clinical associates work in proximity to the supervising medical practitioner in OPD, emergency departments, CHCs and PHC clinics. They may make ward rounds; visit clinics; assist with major and minor surgery; and provide local, regional and general anaesthesia. They may also perform procedures - initially (first two months or first three instances) in the presence of the supervising medical practitioner, then unsupervised once competency is demonstrated, providing the supervising medical practitioner is immediately available (i.e. on the institutional premises).

⁵¹ HPCSA. Guidelines on Ethical rules. Ethical rules, regulations and policy guidelines. 2017. (<http://www.hpcs.co.za/Conduct/Ethics>)

Supervision of clinical associate with 2-4 years in practice (“Indirect Supervision by medical practitioner, acts in an advisory role”)

Practical Implementation of paragraph (5) of the scope of practice: The clinical associate works as part of a team in a unit in the facility or health service, with the supervising medical practitioner leading the team. The clinical associate reports to the supervising medical practitioner after “every task” such as at the end of the ward round, end of the OPD session, end of clinic session, or before leaving casualty. They should also consult with the supervising medical practitioner during the sessions, as needed. The supervising medical practitioner countersigns the patient files during this report (or within 48 hours). Where a management plan or decision does not follow the Primary Health Care, Hospital Adult Level or Hospital Paediatric Level Standard Treatment Guidelines, and Essential Medicines List; an agreement should be reached between the medical practitioner and clinical associate (can be telephonic) before implementation. All inpatients must be seen by a medical practitioner before discharge from the hospital. After the initial two-year period of direct supervision, on every occasion when a clinical associate moves to work in a new department or facility, the clinical associate must see a minimum number of patients (specified by the department/facility) with direct supervision before functioning again with indirect supervision. Under indirect supervision, the medical practitioner must be working within the same department as the clinical associate and be on duty with the clinical associate. The medical practitioner must be readily available to provide immediate response should the clinical associate require it.

Supervision of clinical associate with 5+ years in practice (“Collaborative Supervision by medical practitioner, acts in a partner role”)

Practical implementation of paragraph (6) of the scope of practice: The clinical associate works mostly independently, but has access to the supervising medical practitioner when necessary. At this stage, the supervisor should be considered their primary collaborator in that the clinical associate (provided they been working in the same department) will have gained adequate experience and competence to be able to work independently on a day-to-day basis. All patients with chronic conditions can be managed independently by the clinical associate, providing they are seen at least once a year by the supervising doctor, and there have been no changes to their medical condition during that period.

3C. Guidelines for Structures of Supervision in Various Clinical Settings

The management team of every facility where clinical associates work has the responsibility to ensure that adequate supervision - commensurate with the specific circumstances and needs of both the facility and the level of experience and training of the clinical associate - is accessible.

Supervision of the clinical associate should be considered in the context of a collaborative team with common goals of patient care, timely delivery and efficient use of resources with the team.

Supervision and mentorship should be regularly evaluated by senior managers to ensure that clinical associates are well supported and not left in a position where they have to perform medical acts beyond their capabilities.

Supervision in specific workstations

Any appropriate work can be delegated to the clinical associate, provided the clinical associate and the medical practitioner agree that the clinical associate is capable of conducting the consultation,

examination, procedure management, follow up, etc. Should the clinical associate perform any procedure or management plan they know to be beyond their ability and/or training, they alone will be held personally liable, and not the supervising medical practitioner.

Emergency department

The clinical associate can stabilise a patient and then collaborate with a qualified medical practitioner for further management (this does not mean that the clinical associate should ask for permission, per se). A clinical associate with advanced training in emergency medicine, such as an honours degree, would be able to consult and manage most cases with minimal guidance. Supervision should be based on the individual capacity of each clinical associate and the level of comfort that the supervising medical practitioner has in the clinical associate, hence the focus on collaboration.

Theatre

Clinical associates are expected to be able to function as the required surgical assistant in theatre immediately upon qualification. Surgical practice is an ideal area for clinical associates to enhance the surgical team with lines of supervision often well defined. The clinical associate can learn from and support the surgeon through mentorship and advanced training to perform minor procedures independently and act as first assist in a limitless number of operations.

OPD

The clinical associate can consult stable uncomplicated patients as well as critical or chronic illness patients. Supervision is readily available to multiple clinicians seeing patients individually in a busy OPD setting. An arrangement can be made for clinical associates working in OPD to see patients regularly, with a medical practitioner seeing the patient only once during a six-month period.

Inpatients

All admitted patients must be seen by a medical practitioner before they are discharged, regardless of the reason for admittance. However, the day-to-day management of the patient should be handled by the clinical associate, who can report to the medical practitioner should any complications arise, or if the patient is not improving. A clinical associate can use his/her clinical judgement to decide if a patient needs to be admitted and initiate management, provided a medical practitioner sees the patient within 24 hours of admission to review the management plan developed by the clinical associate.

Anaesthetics

The clinical associate can conduct the preoperative assessment, including securing consent from the patient and ensuring that the patient is medically fit to undergo anaesthesia. Clinical associates with an advanced qualification (e.g. honours degree) in anaesthetics should be able to conduct anaesthesia independently; however, should a patient need to be converted to general anaesthesia, this must be done with supervision (i.e. the supervising medical officer has to be on site, but not necessarily in theatre).

Obstetrics and gynaecology/orthopaedics and trauma/paediatrics/psychiatry

The extent to which a clinical associate works under direct or indirect supervision must be guided by (a) the complexity of the case, (b) the clinical associate's level of experience, (c) the setting in which the clinical associate works (i.e. more advanced procedures and management would be expected of a clinical associate working in a regional or tertiary hospital), and (d) the level of confidence the supervising medical practitioner has in the capabilities of the clinical associate.

Airway and resuscitation management

Upon graduation, all clinical associates are trained and able to conduct resuscitation steps and management as part of their ability to stabilise a patient.

Ventilator management

The role of the clinical associate in ventilator management should be based on the clinical associate's level of experience and the confidence their medical practitioner supervisor has in them. A clinical associate should be able to decide if a patient must be placed on a ventilator machine, and be able to initiate this in collaboration with the medical practitioner.

Skilled procedures

Once a clinical associate has been deemed fit to perform a given procedure and discern any contraindications, that procedure can be conducted by the clinical associate. The clinical associate is responsible for accurately documenting their ability to perform any given procedure. Such documentation should state to what level there was a collaboration between the clinical associate and medical practitioner. If a complex procedure was performed, follow-up must be done in collaboration with the medical practitioner. Otherwise, follow-up can be carried out by the clinical associate (e.g. suturing of superficial lacerations).

Completing legal forms

Clinical associates should be able to fill out legal forms, though only after full discussion with the supervising medical practitioner, especially if there is a chance of a case going to court. The completion of legal forms should be included in the basic training of clinical associates, and practising clinical associates should take a formal in-service course. Another option is to offer an advanced qualification in forensic medicine for clinical associates, which would also help address the massive human resources shortage in that field. The legal framework regarding the completion of legal documents by clinical associates needs to be reviewed.

Ordering of investigative studies (including radiographic studies)

The clinical associate can order any routine investigative study performed in the facility where they are working, provided the medical necessity has been established and the request forms completed correctly. Clinical associates can interpret the results of those investigations in collaboration with the medical practitioner to implement therapeutic management, or without collaboration if the results are straightforward. The extent to which this can be done without collaboration should be dictated by the professional relationship between the supervising medical officer and the qualified clinical associate, also considering his/her level of experience and clinical acumen.

CHAPTER FOUR: ACADEMIC AND PROFESSIONAL CAREER PATHWAYS FOR CLINICAL ASSOCIATES

4A. Academic Training and Advancement

Primary healthcare training - Undergraduate BCMP degree

The Family Medicine Education Consortium (FaMEC) was tasked with developing the undergraduate training platform for the proposed clinical associate cadre in June 2005, by the Minister of Health and NDOH senior management. In August 2005, the report titled “Midlevel Medical Worker Programme for South Africa: Curriculum and Training Plan” provided the groundwork for development and implementation of the three-year undergraduate Bachelor of Clinical Medical Practice (BCMP), now offered at Walter Sisulu University, the University of Pretoria and the University of the Witwatersrand.⁵²

The curriculum matches the medical education paradigm of the hypothetical-deductive reasoning model with an emphasis on primary healthcare training. The core of the curriculum exposes students to the knowledge, application and treatment of the most common medical conditions, and the training of the most relevant clinical skills and procedures for patients seen in South Africa. It is important to recognise that the education of clinical associates is founded upon family medicine training and prepares the clinical associate graduate as a generalist clinician.

The undergraduate academic programme was designed to be relevant and aligned with the Millennium Development Goals (MDGs) for Africa, the New Partnership for South Africa’s Development (NEPAD) and WHO programmes for Africa. The current Minister of Health promotes these broad healthcare goals within South Africa, and the current undergraduate clinical associate training programme produces graduates who meet these goals and outcomes.

The undergraduate training programmes promote the district health systems and current proposals to strengthen healthcare delivery at the sub-districts and community healthcare centres. The broad goals of family medicine are to:

1. Provide quality clinical service based on the principles of the district health system, family medicine and Batho Pele, with a focus on national clinical priorities
2. Address inequity, and marginalised rural and urban health care
3. Ensure cost-effective access and adaptability in team approaches
4. Train the clinical team - including family physicians, clinical associates and primary health care (PHC) nurses - and develop the district health system.

The undergraduate academic pathway leading to a three-year Bachelor of Clinical Medical Practice (BCMP) degree, with registration as a dependent practitioner with HPCSA, provides a young motivated student with a professional position within the healthcare services of South Africa.

The degree is in line with the approved clinical associate scope of practice published in November 2016, which requires new graduates to practice medicine under the supervision and mentorship of a qualified

⁵² Doherty, Jane, Ian Couper, and Sharon Fonn. Issues in Medicine: Will Clinical associates be effective for South Africa? South African Medical Journal 102.11 (2012): 833-835.

medical practitioner, also registered with the HPCSA.

The three-year degree, which is practical in its focus on training, provides the student with a base of medical knowledge, attitude and skill to assess and manage patients with common and acute conditions. The degree trains the clinical associate to be competent in their future role as a practitioner assigned to hospital emergency departments, internal medicine departments, outpatient departments and HIV clinics. They are educated in maternity, gynaecology, paediatrics, surgery and mental health, all at a primary healthcare level and support in anaesthesia, orthopaedics, forensic medicine and geriatric care. Given their broad training in primary health care; emphasis on understanding the body systems; and focus on medical problem-solving, clinical skills, counselling, professionalism, ethics, and healthcare systems; the graduate is equipped to work in a wide range of medical specialties.

The training of clinical associates is predominantly service-based, and they may well be exposed to clinical practice in their first year of training. A significant portion of the service-based training takes place in underserved and rural communities, which helps to ensure that graduates will be keen to work in those communities as qualified clinical associates. International evidence also supports this approach to medical training, which ensures that students graduate with extensive practical experience and knowledge of local circumstances. It further demonstrates students' usefulness to other staff by immediately relieving the workload of medical practitioners and nurses.⁵³

The 2010 Lancet Commission titled "Education of Health Professionals for the 21st Century," proposed a redesign of professional health education based on competencies, interprofessional education, team and work-based training, and use of technology. The commission supports transformational learning around values, leadership and interdependence. The clinical associate degree embraces this "3rd wave" of education reform with competency-based learning, clinical training in the workplace and interdisciplinary-interprofessional learning. In 2013 WHO distributed eleven guidelines for the "Transforming and scaling up health professionals' education and training".

The BCMP degree has incorporated eight of the eleven guidelines by:

1. Developing programmes for faculty and teaching staff, relevant to the evolving healthcare needs of their communities
2. Expanding medical facilities through the recruitment of community-based clinicians and employing health-workers as educators
3. Adapting curricula to suit the evolving healthcare needs of communities
4. Using simulation methods (high fidelity methods in settings with appropriate resources and lower fidelity methods in resource-limited settings) in the education of health professionals
5. Targetting admission policies to increase the socio-economic, ethnic and geographical diversity of students
6. Implementing interprofessional education (IPE) in both undergraduate and postgraduate programmes
7. Lobbying national governments to introduce accreditation of health professionals' education where it does not exist
8. Implementing continuous professional development and in-service training of health professionals relevant to the evolving health-care needs of their communities

⁵³ Midlevel Medical Worker Programme for South Africa: Curriculum and Training Plan. Family Medicine Education Consortium. J Hugo, Z Tshabalala, I Couper, et al. 11 August 2005.

Clinical associate undergraduate training is a model for South African health professional education in the 21st century as it incorporates the most recent evidence-based pedagogies to produce high quality, locally relevant and “fit for purpose” mid-level health practitioners.

Advanced practice training - Postgraduate diploma and honours degree

Since 2010 when the first cohort of clinical associates qualified, the three-year undergraduate BCMP degree has not provided adequate opportunities for the further academic progression of graduates. Lack of advancement in the degree has led to many practising clinical associates leaving the profession to pursue other academic tracks.

To address this concern, in January 2017 the University of the Witwatersrand offered the first one-year full-time course in Bachelor of Clinical Medical Practice (BCMP) honours in emergency medicine. The honours degree focuses on the study and practise of emergency medicine to provide graduates with advanced medical theory, clinical knowledge and skill in the area of emergency medicine. An initiative has begun to start the next honours course in anesthesiology, with support from the South African Society of Anesthesiologists, the University of Pretoria, the University of the Witwatersrand and Walter Sisulu University.

The development of these postgraduate degrees is crucial to encourage graduates to pursue advanced degrees and remain in their career. Mid-level workers can make a real difference in the South African healthcare system, which is short-staffed and overburdened with patient numbers and chronic diseases.

The fourth year of study (honours) would qualify successful graduates for an academic pathway to enrol in Postgraduate Diplomas (PGD), Masters degrees and PhD studies. Stellenbosch University offers a postgraduate diploma in HIV/AIDS Management. Other postgraduate diplomas include:

Examples of PGDs available at the University of the Witwatersrand include:

- Child Health in Community Paediatrics
- Higher Education
- Health Science Education
- Health Services Management

Examples of PGDs available at the University of Pretoria include:

- Public Health
- Health Services Management
- Occupational Health

Masters degrees offered by several South African universities, which become available to clinical associates with an honours degree and/or Postgraduate Diploma, include:

- Masters in Public Health focus areas of epidemiology, health policy and management, health promotion
- Masters of Child Health
- Masters of Science in Emergency Medicine
- Masters in Health Science Education
- Masters in Philosophy in Health Professions Education
- Masters in Bioethics and Health Law
- Masters of Philosophy in HIV/AIDS management

Advanced degrees promote academic excellence in South African students, encourage advancement in new areas of research, and help to establish the fledgeling academic body of clinical associates. Practising clinical associates with an honours degree/PGD will be advancing medicine and clinical skills in areas identified as enhancing medical care in South Africa.

The plan for postgraduate training is to develop further BCMP honours courses/postgraduate diplomas at the universities which currently offer the BCMP undergraduate degree, as well as at other universities which have a health science training platform. Such courses will include postgraduate diplomas and honours courses in anaesthesia, surgery, maternal health, child health, family medicine, infectious disease, mental health, tropical medicine, hygiene, occupational health, trauma, forensic medicine, ophthalmology, ultrasonography, etc. Also, advanced training in primary healthcare for clinical associates would be aligned with the roll-out of NHI.

It is important to note that clinical associates will not be registered with the HPCSA as specialists. Clinical associates are currently, and should continue to be, registered as dependent practitioners with the HPCSA, therefore requiring various levels of supervision, mentoring and collaboration. They can, however, gain advanced clinical training to be competent practitioners in any area of medicine. Thus, even with the advanced degree, the clinical associates are placed in a medical field where they are most needed in the South African healthcare context. In addition, academic progression can be provided by short courses in HIV, IMCI, adult primary care, ultrasound, ACLS, management of MDR TB and others, to maintain and advance topic-specific clinical knowledge and skills.

It is imperative that practising clinical associates are supported to pursue higher degrees to become the academics of the training programmes in their field. For this cadre to evolve, teachers and lecturers need to be developed, trained in pedagogics and skilled as lecturers in delivering high-quality professional health education. Existing career paths as health educationalists can be pursued through advanced studies in healthcare education.

Future academic pathways for BCMP graduates would include the development of a Masters in Clinical Associate Practice (MCAP) or Clinical Medical Practice (MCMP) with an emphasis in an area of medicine, academics, academic leadership and research, promoting PhD advancement which supports the academics in the system, and the healthcare system itself.

4B. Professional Career Progression

Job responsibilities and job titles

In line with regulations for defining the approved scope of practice for clinical associates, as published on 11 November 2016, it will be required that clinical associates perform duties on three different levels. Additional tasks and skills will be added as they proceed up the ranks, according to further education, training and experience.

- I. **First Level - Clinical Associate:** Initially a clinical associate registered with the HPCSA requires a higher level of supervision and mentorship by a registered medical officer, as described in the scope of practice in Chapter 3 of this report. During this period a clinical associate will perform duties according to their education, training and experience and will have an entry-level salary scale, as determined by the job evaluation.
- II. **Second Level - Senior Clinical Associate:** This level describes a clinical associate with either a relevant postgraduate diploma or an honours degree and three or more years of relevant clinical

work experience as a clinical associate on entry level; or as a clinical associate with five years continuous clinical work experience as a clinical associate on entry level, or as determined by the Recognition of Prior Learning as a clinical associate on entry level. In the approved scope of practice, a clinical associate with five or more years of clinical experience needs less supervision and can perform his/her duties efficiently without consuming the valuable time of supervising medical practitioners, unless necessary. When they reach this level of competency, it will be appropriate to appoint them as a senior clinical associate with a higher grade and higher salary, in accordance with the recognition of prior learning determining factors.

- III. **Third Level - Principal Clinical Associate:** This level describes a clinical associate with a relevant Master's degree and five or more years of clinical work experience as a clinical associate at the second level; or a clinical associate with ten years continuous clinical work experience as a clinical associate at the second level. A clinical associate at this level requires minimal supervision, working more in collaboration with a supervising medical practitioner, and can perform their duties according to their extended experience, further training and/or masters level education. During this period the principal clinical associate will have a rank determined by their job evaluation which will be equivalent to Master's degree level with its higher salary scale.

Table 11: Proposed career path for clinical associates

| Name of Post / Rank | Requirements |
|--|---|
| Clinical associate (First Level) | BCMP, BMCP or equivalent degree AND registration with the HPCSA as clinical associate |
| Senior clinical associate (Second Level) | BCMP, BMCP or equivalent degree AND registration with the HPCSA as clinical associate AND relevant postgraduate diploma or honours degree with at least 3 or more years' appropriate experience as clinical associate at first level OR at least five years' continuous and appropriate experience as clinical associate on first level |
| Principal clinical associate (Third Level) | BCMP, BMCP or equivalent degree AND registration with the HPCSA as clinical associate AND relevant master's degree with a minimum of five years' appropriate and continuous experience as a senior clinical associate; OR with at least ten years' continuous and appropriate experience as a senior clinical associate |

Some clinical associates may prefer to advance into various management positions in the health service in parallel with existing line management streams. This should follow existing programme manager position promotional rules.

4C. Internship and Community Service

Internship for clinical associates

Internships for clinical associates are currently not regarded as appropriate for the following reasons:

- Training of clinical associates takes place in the same environment (district health service) where they will practise, so they are adequately prepared for work upon graduation.
- The scope of practice provides for sufficient supervision in the early years after qualification.
- Clinical associate students learn while working in the service, thus gaining significant practical work experience before graduation.
- Clinical associates continue to be supervised after qualification and registration with the HPCSA.
- A structured internship may result in clinical associates moving away from rural areas where they are most needed.
- The processes for creating and maintaining internships will be a significant logistic and bureaucratic burden.

Community service for clinical associates

Community service can be a tool to ensure that clinical associates work in public service. However, a majority of clinical associates work in the public sector and in rural communities. This trend is likely to continue given the majority of students are recruited from and return to rural areas. Clinical associates are currently serving their communities providing quality healthcare where it is most needed. Therefore, it is not proposed that clinical associates participate in community service. However, should community service be reviewed, clinical associates could be considered. Before implementation there would need to be a well-drafted plan for allocation, housing, remuneration, etc. and appropriate timeline as developed by the Department of Health.

4D. Conditions of Service

Need to conduct job reevaluation and regrading for the clinical associate

Section 41 (1) of the Public Service Regulations of 2016 states that the Minister shall determine a job evaluation and job grading system or systems that shall be utilised in the public service to ensure work of equal value is remunerated equally; and a range of job weights derived from the system or systems for each salary level in a salary scale.

Job evaluation is concerned with the qualitative aspects of the job, not the quantitative aspects. In other words, it is not the amount of work allocated to a post which is primarily measured, but its relative demands, complexity and responsibility, and the competencies required to carry out the job effectively.

A job evaluation on the post of clinical associate, as per the approved standardised job description, was conducted in the public service in 2010 and results came out at Level Seven (7) of the Public Services Scales. However, the recently finalised Scope of Practice has necessitated the review of the current graded job for clinical associates.

Furthermore, in line with Section 39. (1) of the Public Service Regulation of 2016, which states that at least once every 60 calendar months, an executive authority shall review job descriptions and titles and, where necessary, redefine them to ensure that they remain appropriate and accurate. A review of the job descriptions and titles for clinical associates is long overdue.

Remuneration

Remuneration for positions in the Public Service is determined through the job evaluation process, as outlined by the Public Service Regulations, 2016 as amended. As the custodian of such regulations, DPSA has provided guidelines for the process, and no deviation is allowed.

The policy further allows for jobs to be re-evaluated if they meet certain conditions, or if need arises. Since clinical associates have been part of the South African healthcare workforce since 2011, and with the finalisation of the scope of practice, it is time to re-evaluate. NDOH issued the job description and level of remuneration for clinical associates in late 2010 in preparation for the first graduates from Walter Sisulu University entering the workforce. The salary level was set at Level 7 of the Public Service Act, with appointees not covered by occupation-specific dispensation, and has remained there for the past seven years without review or increase. An annual salary at Level 7 is R211,194 with a monthly take-home pay of R14,432.50. Clinical associates working in collaboration with their supervising medical practitioner can perform patient consultations and many invasive procedures, interpret laboratory studies, formulate and execute comprehensive management plans, and write prescriptions, according to the standard treatment guidelines. They have significant responsibilities and deserve a salary level commensurate with their scope of practice.

Bearing in mind that seven cohorts of numbering over 900 clinical associates have graduated with over 700 employed, it is now time that a new job evaluation is conducted to determine the appropriate salary level. Considering the job description and scope of practice, it can be argued that the current salary level is inappropriately low. It is proposed that the salary notch and title be increased appropriately, according to three levels of the profession: clinical associate - entry level, senior clinical associate – second level, and principal clinical associate - third level.

Even with a pay progression increase according to their professional rank, clinical associates will still be cost-effective. The figures in Scenario A Table 4 from Chapter 1 can be calculated at the salary levels of allied and related health practitioners (AHP). Even then, 12.4% actual saving in HR costs will be achieved as shown in Table 15. See Scenario A Table 15 below.

Scenario A

Table 15: Cost comparison of the total cost to employer (TCE) for 5 medical practitioners vs 3 medical practitioners + 4 clinical associates.

| | 5 medical practitioners | Combination of 3 medical practitioners + 4 clinical associates (TCE) | Combination of 3 medical practitioners + 4 clinical associates (at the TCE of AHP) |
|---|-------------------------|--|--|
| Medical practitioner salaries per annum | R 3 648 930 | R 2 189 358 | R 2 189 358 |
| Clinical associate salaries per annum | | R 1 225 036 | R 1 489 051 |
| Total | R 3 648 930 | R 3 414 394 | R 3 678 409 |
| Percentage saving | | 6.9% | -0.8% |
| Value of 4/6 medical practitioner time | | R 486 524 | R 486 524 |

| | | | |
|--------------------------------|--|------------|--------------|
| gained | | | |
| Actual percentage saved | | 21% | 12.4% |

In Scenario A, a 13% increase in medical practitioner time available to the health service is achieved with a minimal increase in HR cost.

Scenario B

For Scenario B(i) and (ii), the human resource costs in Tables 5 and 6 from Chapter 1 can also be recalculated taking a higher salary for clinical associates into consideration. As shown in Tables 16 and 17, actual savings of 10.4% and 8.5% respectively can be achieved.

Scenario B(i). Table 16: Cost comparison of the total cost to employer (TCE) for 5 medical practitioners vs 3 medical practitioners + 3 clinical associates.

| | 5 medical practitioners | Combination of 3 medical practitioners + 3 clinical associates | Combination of 3 medical practitioners + 3 clinical associates (at the TCE of AHP) |
|---|-------------------------|--|--|
| Medical practitioner salaries per annum | R 3 648 930 | R 2 189 358 | R 2 189 358 |
| Clinical associate salaries per annum | | R 918 777 | R 1 116 788 |
| Total | R 3 648 930 | R 3 108 135 | R 3 306 146 |
| Percentage saving | | 17.4% | 10.4% |

Scenario B(ii). Table 17: Cost comparison of the total cost to employer (TCE) for 5 medical practitioners vs 4 medical practitioners + 3 clinical associates.

| | 5 medical practitioners | Combination of 4 medical practitioners + 3 clinical associates | Combination of 4 medical practitioners + 3 clinical associates (at level of TCE for AHP) |
|---|-------------------------|--|--|
| Medical practitioner salaries per annum | R 3 648 930 | R 2 919 144 | R 2 919 144 |
| Clinical associate salaries per annum | | R 918 777 | R 1 116 788 |
| Total | R 3 648 930 | R 3 837 921 | R 4 035 932 |
| Percentage saving | | -4.9% | -9.6% |
| Value of 1 FTE medical practitioner time gained | | R 729 786 | R 729 786 |
| Actual percentage saved | | 14.1% | 8.5% |

General annual adjustments

In accordance with all public service acts, regulations and resolutions are signed by both the Public Service Coordinating Bargaining Council (PSCBC) and the Public Health and Social Development Sectoral Bargaining Council (PHSDSBC). Clinical associates will receive all benefits as determined for all other public servants, and will be subjected to performance evaluations in accordance with the Public Management Development System.

Example of a current remuneration package of a clinical associate

| Occupation | Salary level | Notch position | Salary on 1 April 2016 | Service bonus | Employer's contribution to GEPF | Maximum home owner's allowance | Maximum contribution to medical scheme (GEMS) | Potential total package (Rpa) |
|--------------------|--------------|----------------|------------------------|---------------|---------------------------------|--------------------------------|---|-------------------------------|
| Clinical Associate | 7 | 1 | R 211 194 | R 17 599.50 | R 27 455.22 | R 6 000 | R 26 000 | R 288 249 |
| | 7 | 12 (Max) | R 248 781 | R 20 731.75 | R 32 341.53 | R 6 000 | R 26 000 | R 333 854 |

Clinical associate and occupation-specific dispensation (OSD)

To enable the government to recruit and retain professionals, the wage agreement provides for the development of occupation-specific dispensation (OSD) for identified categories of staff. At the time of finalising the OSD resolution, clinical associates were not part of the health workforce.

The following core principles direct the OSDs:

- Unique salary structures per occupation
- Salaries of occupational categories will, where necessary, be market-related.
- Centrally determined grading structures and broad job profiles
- Adequate career pathing opportunities, which is a progressive plan to systematically increase salaries of public servants after pre-determined periods based on specific criteria such as performance, qualification, scope of work, responsibilities, experience, etc.

Considering the contribution clinical associates make to the delivery of clinical services; it is fair to consider them for inclusion in the Occupation Specific Dispensation as with other medical, dental, nursing and allied health professionals.

Clinical associates and overtime

Clinical associates are entitled to overtime, in accordance with Resolution 3 of 1999, and should receive remuneration for all overtime hours worked, if required to do so by their employer. Overtime includes any hours above those determined as regular working hours by the public service regulations. Any new policy developed concerning commuted overtime must include clinical associates, who are an integral part of the South African health workforce.

Clinical associates and rural allowance (PUBLIC HEALTH AND WELFARE SECTOR BARGAINING COUNCIL, RESOLUTION NO.2 OF 2004)

A rural allowance is currently under review. Clinical associates should be included in the list of professions receiving a rural allowance, to increase their retention in rural areas. Their retention is particularly valuable because as clinical associates work in a particular service, over time they learn the specific skills needed for that facility and can task-share more efficiently with medical practitioners. There is always the risk that many will leave rural areas in favour of work in urban areas, for NGOs, in the private sector, or to pursue other careers.

Appendix 1: Clinical Associates Scope of Practice

GOVERNMENT NOTICE

DEPARTMENT OF HEALTH

No. R.

2016

HEALTH PROFESSIONS ACT, 1974 (ACT NO. 56 OF 1974)

REGULATIONS DEFINING THE SCOPE OF PRACTICE OF CLINICAL ASSOCIATES

The Minister of Health has, under section 61(1)(k) of the Health Professions Act, 1974 (Act No. 56 of 1974) and after consultation with the Health Professions Council of South Africa, made the Regulations in the Schedule.



DR. AARON MOTSOLEDI

MINISTER OF HEALTH

DATE: 12/10/2016

SCHEDULE

Definitions

1. In these Regulations, unless the context otherwise indicates, "**Act**" means the Health Professions Act, 1974 (Act No. 56 of 1974), and any word or expression to which a meaning has been assigned in the Act bears that meaning -

"**clinical associate**" means a person registered as such under the Act;

"**professional board**" means the Medical and Dental Professions Board established in terms of section 15 of the Act.

Acts deemed to be acts pertaining to the scope of practice of Clinical Associates

2. The following acts are deemed to be acts pertaining to the scope of practice of clinical associates and must be performed within ethical rules of the Health Professions Council of South Africa and all applicable clinical protocols and strategies for all age groups:

- (a) Obtaining a patient's history and performing a physical examination of the patient in accordance with the clinical associate's level of education, training and experience;
- (b) ordering or performing diagnostic and therapeutic procedures for common and important conditions in South Africa and in accordance with the clinical associate's level of education, training and experience;
- (c) performing or ordering and interpreting the following investigations:

| INVESTIGATIONS | |
|--|---|
| Performing finger prick blood tests (on accreditation compliant instrumentation under the guidance of an accredited laboratory according to Point of Care Testing guidelines). | HIV (including counselling), Haemoglobin, blood glucose, blood type, etc. |
| Ordering and interpreting X Rays | |
| Performing/ordering and interpreting ECG | |
| Performing/ordering urine tests and interpreting results | Dipstix, pregnancy test, Microscopy, Culture and Sensitivity (MC&S), etc. |

| | |
|--|---------------------------------------|
| Ordering stool tests and interpreting results | MC&S, etc. |
| Performing throat swab, ordering tests and interpreting results | MC&S, etc. |
| Collecting sputum samples, ordering tests and interpreting results | Acid Fast Bacillus (AFB) , MC&S, etc. |
| Ordering blood tests and interpreting results | Full Blood Count (FBC) |
| | Liver Function Tests (LFT) |
| | Urea and Electrolytes (U&E) |
| | C-reactive protein (CRP), etc. |

- (d) interpreting findings and formulating a diagnosis for common and emergency conditions referred to in paragraph (b) in accordance with clinical associate's level of education, training and experience;
- (e) performing the following procedures under supervision of a medical practitioner and in accordance with the clinical associate's level of education, training and experience:

| AGE GROUP | PROCEDURE |
|----------------|--|
| All age groups | Administration of Oxygen |
| | Acute debriefing/Sharing bad news |
| | Administration of nebulisation |
| | Apply POP - all types |
| | Arterial blood gas - radial, femoral |
| | Check for union of fractures |
| | Cranial Nerve II-XII Examination |
| | Completion of J88 Assault Form |
| | Counselling - bad news |
| | Counselling – death |
| | Counselling - family/mental health |
| | Counselling – HIV |
| | Counselling – Pregnancy |
| | Defibrillation Automatic Emergency Defibrillator (AED)/ manual |
| | Death notification |
| | Dress abrasions and burns |

| | |
|-----------------------------------|---|
| | Foreign body removal – ear and nose |
| | Gastric Lavage |
| | Intravenous line insertion |
| | Inter costal drain insertion |
| | Injections – Intradermal |
| | Injections – Intramuscular |
| | Injections – Subcutaneous |
| | Lumbar Puncture (except in neonates) |
| | Mantoux |
| | Medical condition notification |
| | Metered Dose Inhaler technique and demonstration |
| | Nasogastric Tube Insertion |
| | Paraphimosis reduction |
| | Patient referral |
| | Peak Flow Meter use and Interpretation |
| | Pulse Oximetry |
| | Removal of foreign body –ear and nose |
| | Removal of POP |
| | Sick leave certification |
| | Snellen Visual Chart Exam |
| | Suprapubic aspiration/catheter insertion |
| | Syringe of ear/Ear irrigation |
| | Venipuncture |
| Adults and children 13 – 17 years | Aspiration and incision and drainage of abscess |
| | Assist in Caesarean Section |
| | Assist in closed fracture reduction |
| | Assist in diathermy/cautery |
| | Assist in emergency laparotomies |
| | Assist in epidural and spinal anaesthesia |
| | Assist in knee and other joint aspiration |
| | Assist in medico legal examination |
| | Assist in open reduction of fractures |
| | Assist in/perform reduction of joint dislocations |
| | Assist in tubal ligation |
| | Bag and mask ventilation |

| |
|---|
| Basic life support |
| Bladder catheterisation - female |
| Bladder catheterisation - male |
| Blood transfusion |
| Bone marrow aspiration |
| Cardiopulmonary resuscitation (CPR) |
| Cardiotocographic fetal heart monitoring |
| Cautery/excision of condylomata |
| Central line insertion- external jugular vein, femoral vein. |
| Circumcision - uncomplicated |
| Close surgical incisions (all layers) |
| Cricothyroidotomy |
| Cryotherapy |
| Debridement of minor limb injuries |
| Dilatation & Curettage |
| Dilatation of pupil |
| Drainage of simple hydrocele |
| Dry mopping of ear |
| Episiotomy – perform and suture (including repair of vaginal tears) |
| Eye staining |
| Excision of skin glands/cysts/ masses/lesions |
| Fine Needle Aspiration – breasts and nodes |
| Full spine immobilization & log roll |
| Genital swabs |
| Glasgow Coma Scale (GCS) assessment |
| Glue lacerations |
| Incision and drainage of Quinsy |
| Incision and drainage of paronychia |
| Instruction in use of crutches |
| IV Infusion |
| Incision and drainage of superficial abscess |
| Incision of thrombosed haemorrhoid |
| Intra- and post-operative observation |
| Intrauterine contraceptive device insertion |
| Insertion and removal of long-acting subdermal contraceptive implants |

| |
|--|
| Knee examination |
| Leg ulcer chronic dressing |
| Lymph node biopsy |
| Meibomian abscess removal |
| Mental health examination |
| Mental Health History |
| Mini Mental State (MMS) examination |
| Normal vaginal delivery |
| Oral airway/Laryngeal mask airway/other airway devices |
| Oral endotracheal intubation |
| Packing of nose |
| Paracentesis |
| PAP smear |
| Portable ventilation |
| Pre-op assessment |
| Pleural tap; Pleural biopsy |
| Preparation of malaria smear |
| Reduction of shoulder dislocation |
| Removal of K-wire |
| Regional Blocks – penile |
| Regional blocks - ring blocks |
| Removal of foreign body – ear, eye, eyelid and vagina |
| Restraining a patient |
| Conscious sedation |
| Skin applications (Podophyllin) |
| Skin biopsy |
| Skin grafts – small |
| Sputum collection |
| Stool specimen collection |
| Suture lacerations |
| Suturing ear |
| Suturing eyelid |
| Tamponade of epistaxis |
| Trauma survey (primary &secondary) |
| Triage |

| | |
|--------------------------------|---|
| | Venous cut down |
| | Wound care and debridement |
| Children up to 12 years of age | Apply Gallows traction |
| | Assist at lumbar puncture - Neonate |
| | Lumbar puncture - Children |
| | Hearing Screen |
| | Immunisations |
| | Intraosseous infusion |
| | Initiate Neonatal Resuscitation (bag and mask) |
| | Initiate Paediatric Resuscitation (bag and mask) |
| | Complete the Road to Health booklet |
| | Nutritional assessment |
| | Assess for and initiate CPAP in newborns with respiratory distress syndrome (RDS) |
| | Prescribe and initiate phototherapy in newborns |

- (f) developing, implementing and monitoring a comprehensive management plan for common and important conditions;
- (g) issuing sick certificates for a period not exceeding 3 days, which must contain the name and contact details of the supervising medical practitioner;
- (h) prescribing medicines for common and important conditions according to the primary health care level Essential Drug List (EDL) and up to schedule IV, except in emergencies when appropriate drugs of higher schedules may be prescribed. The prescription must contain the name of the supervising medical practitioner. In the case of drugs not on the EDL the prescription must be countersigned by a medical practitioner;
- (i) being the required assistant at surgery;
- (j) making appropriate admissions, discharges and referrals;
- (k) performing any act delegated to him or her by the supervising medical practitioner in accordance with the education, training and experience of the clinical associate; and

- (l) assisting medical practitioners within district level health care services and with the focus on primary health care.

Conditions of practice

3. (1) A clinical associate may not conduct an independent private practice.
- (2) A clinical associate may not act as a *locum tenens* for a medical practitioner.
- (3) The acts referred to in regulation 2 must be performed under the supervision of a medical practitioner identified by the service in which the clinical associate is working and must be available to the clinical associate at all times.
- (4) A clinical associate who has practised as a clinical associate for a continuous period of less than two years must perform the acts referred to in regulation 2 under the continuous and hands on supervision of a medical practitioner, and in the clinical setting alongside the supervising medical practitioner.
- (5) A clinical associate who has practised as a clinical associate for a continuous period of two to four years must perform the acts referred to in regulation 2 and report, in person, to the clinical associate's supervisor after each task: Provided that a clinical associate referred to in this subregulation must practise in the same component of a health facility as the supervising medical practitioner who must approve and countersign all the clinical associate's management plans or decisions.
- (6) A clinical associate who has practised as a clinical associate for a continuous period of five or more years may perform acts referred to in regulation 2 independently on a day to day basis and does not have to report to the supervising medical practitioner but must have personal or verbal access to the supervising medical practitioner's support when necessary.
- (7) A clinical associate must be identified by the title of Clinical Associate (abbreviation: Clin A) and must always be identifiable as such by patients and co-workers.

Short Title

4. These Regulations are called the Regulations Defining the Scope of Practice of Clinical Associates, 2016.

Appendix 2: The Cost of Training Clinical Associates

Table 1: Cost of studying BCMP in 2017 at three universities to become a clinical associate

| Year | University of Pretoria | | | University of the Witwatersrand | | | Walter Sisulu University | | | |
|---------------------|------------------------|---------------|-----------|---------------------------------|---------------|-----------|--------------------------|---------------|----------|--|
| | Fees & books | Accom & meals | Total | Fees & books | Accom & meals | Total | Fees & books | Accom & meals | Total | |
| 1 | R 68 156 | R 65 800 | R 133 956 | R 62 143 | 60 000 | R 122 143 | R 62 390 | R 35 240 | R 97 630 | |
| 2 | R 22 410 | R 65 800 | R 88 210 | R 49 836 | 60 000 | R 109 836 | R 62 390 | R 35 240 | R 97 630 | |
| 3 | R 31 000 | R 65 800 | R 96 800 | R 48 026 | 60 000 | R 108 026 | R 60 840 | R 35 240 | R 96 080 | |
| | | | R 318 966 | | | | R 340 005 | | | |
| Average = R 316 770 | | | | | | | | | | |

The average cost to train one clinical associate student for the 3-year bachelor degree is R316 770, compared to the average cost to train one medical student for a 6-year bachelor degree at R737 719, as demonstrated in table 2.

Table 2: Cost of studying MBChB at two universities in 2017

| Year | University of Stellenbosch | | | University of Pretoria | | | |
|---------------------|----------------------------|-----------------------|-----------|------------------------|-----------------------|-----------|-----------|
| | Fees & books | Accommodation & meals | Total | Fees & books | Accommodation & meals | Total | |
| 1 | R 61 132 | R 59 165 | R 120 297 | R 58 805 | R 65 800 | R 124 605 | |
| 2 | R 60 756 | R 59 155 | R 119 911 | R 60 260 | R 65 800 | R 126 060 | |
| 3 | R 60 951 | R 59 155 | R 120 106 | R 55 030 | R 65 800 | R 120 830 | |
| 4 | R 55 718 | R 59 155 | R 114 873 | R 56 115 | R 65 800 | R 121 915 | |
| 5 | R 76 056 | R 59 155 | R 135 211 | R 58 610 | R 65 800 | R 124 410 | |
| 6 | R 61 489 | R 59 155 | R 120 644 | R 60 775 | R 65 800 | R 126 575 | |
| | | | R 731 042 | | | | R 744 395 |
| Average = R 737 719 | | | | | | | |

Thus, 2.3 clinical associates can be trained for the same cost as one medical practitioner.

Appendix 3: Salary of Clinical Associates

Table 3a: Average salary of clinical associates in South Africa⁵⁴

| Clinical Associate | | | |
|--------------------|-------------------------------|----------------------------------|--------------------------|
| Year | Salary level | Full-time salary 1 April 2016 | With benefits (TCE)** |
| 1 | PSAP (Non-OSD)* Level 7: no 1 | R 211 194 | R 288 249 |
| 2 | PSAP (Non-OSD) Level 7: no 2 | R 214 365 | R 292 096 |
| 3 | PSAP (Non-OSD) Level 7: no 3 | R 217 584 | R 296 002 |
| 4 | PSAP (Non-OSD) Level 7: no 4 | R 220 848 | R 299 962 |
| 5 | PSAP (Non-OSD) Level 7: no 5 | R 224 157 | R 303 977 |
| 6 | PSAP (Non-OSD) Level 7: no 6 | R 227 520 | R 308 058 |
| 7 | PSAP (Non-OSD) Level 7: no 7 | R 230 928 | R 312 193 |
| 8 | PSAP (Non-OSD) Level 7: no 8 | R 234 396 | R 316 400 |
| 9 | PSAP (Non-OSD) Level 7: no 9 | R 237 909 | R 320 663 |
| 10 | PSAP (Non-OSD) Level 7: no 10 | R 241 476 | R 324 991 |
| Average | | R 226 038 | R 306 259 |

* PSAP (Non-OSD) = PUBLIC SERVICE ACT APPOINTEES NOT COVERED BY Occupation Specific Dispensation ¹⁴

** TCE = Total Cost to Employer

Table 3b: Average salary of medical practitioner in South Africa⁵⁵

| Medical Practitioner | | |
|----------------------|---|---|
| Year | Occupation Specific Dispensation (OSD) post | Full-time salary 1 April 2016 (all inclusive) |
| 1 | Medical Officer (Community Service) | R 551 454 |
| 2 | Medical Officer (Gr 1) | R 686 322 |
| 3 | Medical Officer (Gr 1) | R 696 624 |
| 4 | Medical Officer (Gr 1) | R 707 067 |
| 5 | Medical Officer (Gr 1) | R 717 672 |
| 6 | Medical Officer (Gr 1) | R 728 436 |
| 7 | Medical Officer (Gr 2) | R 784 743 |
| 8 | Medical Officer (Gr 2) | R 796 506 |
| 9 | Medical Officer (Gr 2) | R 808 455 |
| 10 | Medical Officer (Gr 2) | R 820 581 |
| Average | | R 729 786 |

⁵⁴ Department of Public Service and Administration. Salary Scales with effect 1 April 2016, Annexure A, Public Service Act appointees not covered by OSDs. South Africa. 2016

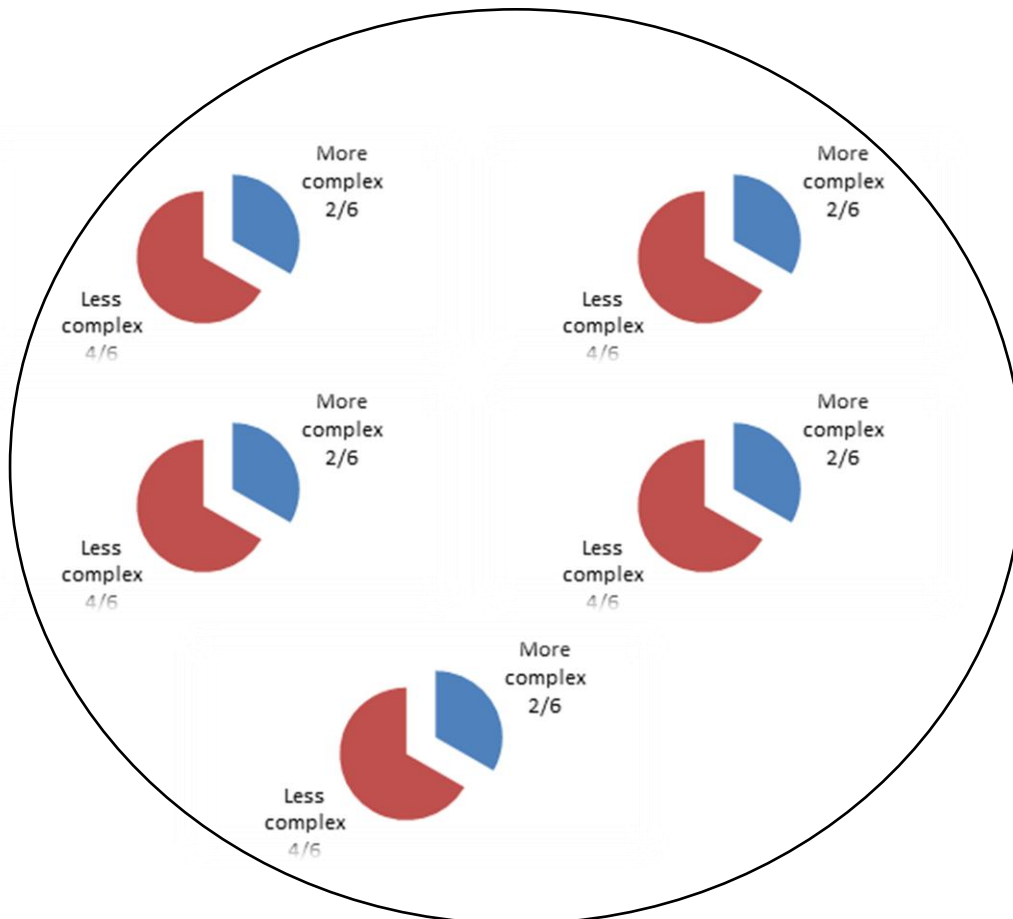
⁵⁵ Department of Public Service and Administration. Salary Scales with effect 1 April 2016, Annexure H, OSD for Medical Officers, Medical Specialists, Dentists, Dental Specialists, Pharmacologists, Pharmacists and Emergency Care Practitioners. South Africa. 2016

Appendix 4: Examples of different scenarios to demonstrate the effects of task sharing

Scenario A

Where a facility or unit in a facility has five funded medical practitioner posts, of which only three are filled, the two vacant posts can be converted to four clinical associate posts. In this example, it is assumed that 2/3 (66%) of the medical practitioners' less complex tasks can safely be delegated to clinical associates (task sharing) to be performed by them with equivalent quality while being mentored and supervised by medical practitioners.^{56,57} Examples of the one-third of medical practitioner's tasks that would be too complex to delegate to clinical associates include performing major surgery, managing patients with multiple and complex co-morbidities, and managing patients with rare conditions not included in the education of clinical associates. Where two-thirds of a medical practitioner's tasks can be task-shared to clinical associates, the clinical workload can then be re-assigned, with an allowance of time for supervisory functions as follows:

Scenario A - Chart 1: Workload for five medical practitioners where 1/3 (or 2/6) of their tasks are too complex to delegate to a clinical associate.

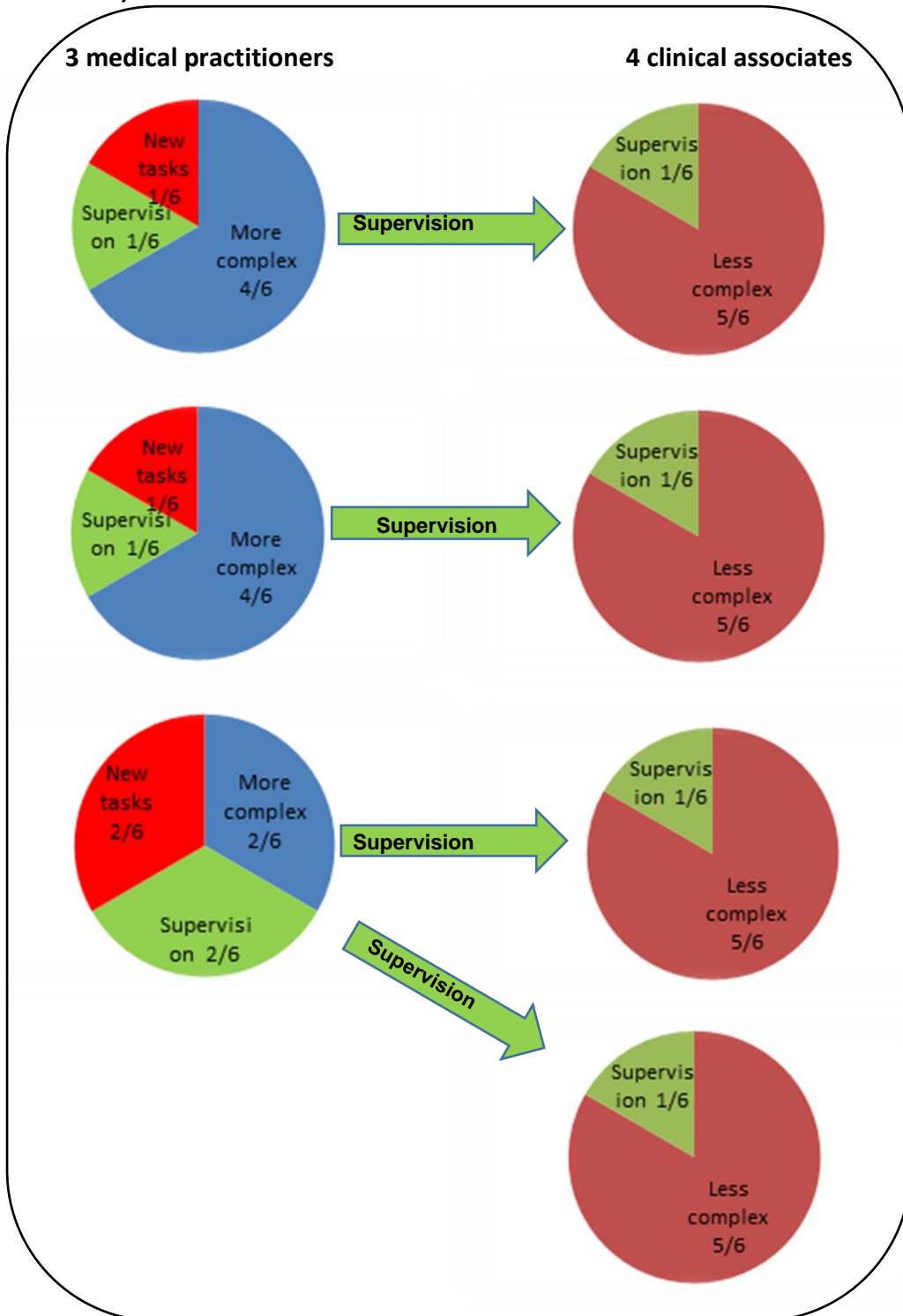


Two vacant medical practitioner posts can then be converted to four clinical associate posts to create a new team of seven clinicians as shown below.

⁵⁶ Lehmann U. Mid-level health workers: the state of the evidence on programmes, activities, costs and impact on health outcomes. A literature review. Geneva: World Health Organisation; 2008. Geneva, Switzerland; 2008.

⁵⁷ World Health Organisation. Task shifting: rational redistribution of tasks among health workforce teams: global recommendations and guidelines. 2007

Scenario A - Chart 2: Workload of the new team of 7 clinicians (each circle represents the work package of one clinician)



The cost of this new arrangement will be significantly lower while at the same time increasing the clinical manpower available to provide clinical services. For each of the three medical practitioners in the new team, time will be needed to supervise the clinical associates; but there will also be some time (at least 1/6) freed up to take on new tasks, or to provide new services previously not offered.

Scenario A - Table 4: Cost comparison of 5 medical practitioners vs 7 clinicians

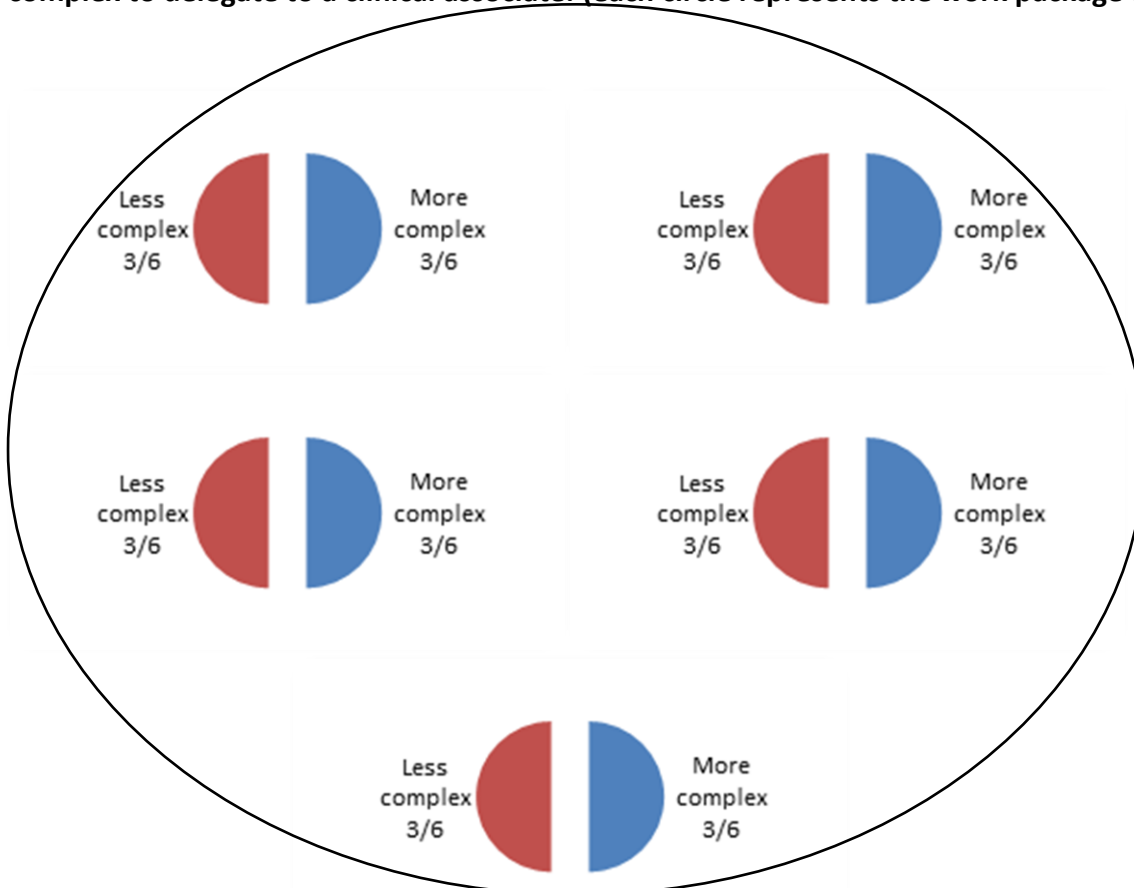
| | Only 5 medical practitioners | Combination of 3 medical practitioners + 4 clinical associates (TCE) |
|---|------------------------------|--|
| Medical practitioner salaries per annum | R 3 648 930 | R 2 189 358 |
| Clinical associate salaries per annum | | R 1 225 036 |
| Total | R 3 648 930 | R 3 414 394 |
| Percentage saving | | 6.9% |
| Value of 4/6 medical practitioner time gained | | R 486 524 |
| Actual percentage saved | | 21% |

In Scenario A, 13% increase in medical practitioner time available to the health service translates to at least a 6.9% HR cost saving. Scenario A also shows that adding 4 clinical associates to a team of 3 medical practitioners will achieve the same increase in service delivery as adding 2 $\frac{2}{3}$ medical practitioners to the same team, but at a 21% lower cost. This converts to three clinical associates in a team led by medical practitioners achieving a similar output as two medical practitioners.

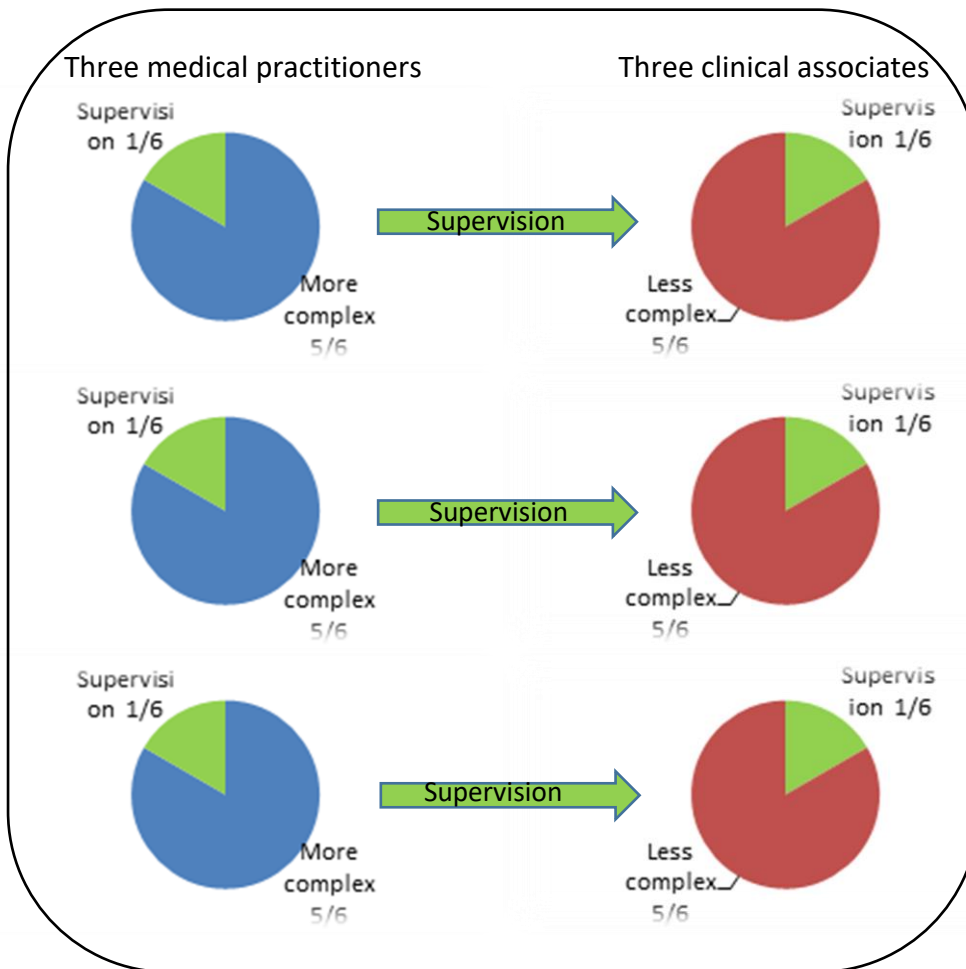
Scenario B

In a situation where 50% of a medical practitioner’s workload is too complex to task-share with clinical associates, the strategy can be to change five medical practitioner posts to three medical practitioners with three clinical associate posts.

Scenario B. Chart 3: The workload of five medical practitioners where ½ (or 3/6) of their tasks are too complex to delegate to a clinical associate. (each circle represents the work package of one clinician)



Scenario B(i). Chart 4: The new team of six clinicians (each circle represents the work package of one clinician):



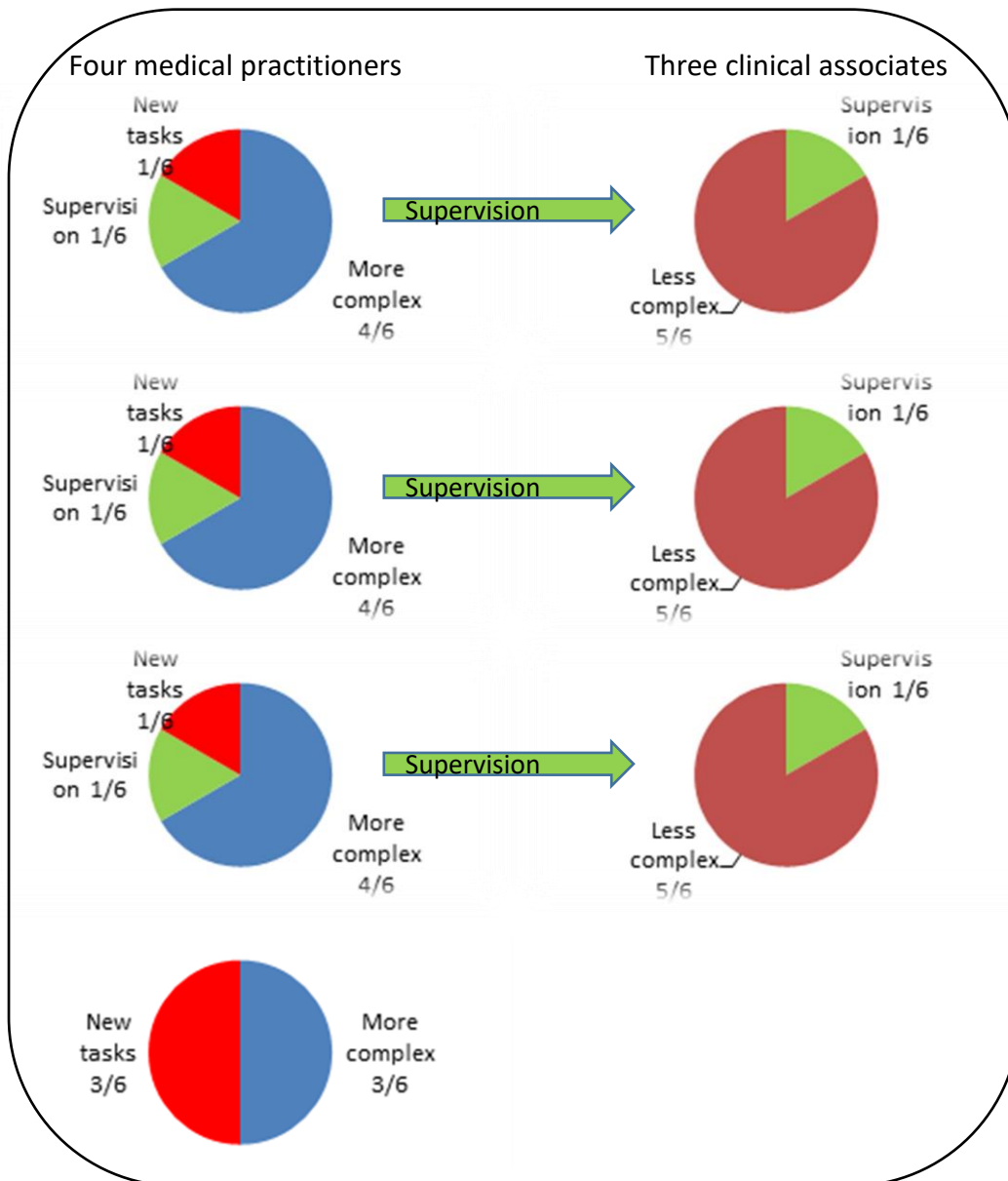
Scenario B(i). Table 5: Cost comparison of 5 medical practitioners vs 6 clinicians

| | 5 medical practitioners | Combination of 3 medical practitioners + 3 clinical associates |
|---|-------------------------|--|
| Medical practitioner salaries per annum | R 3 648 930 | R 2 189 358 |
| Clinical associate salaries per annum | | R 918 777 |
| Total | R 3 648 930 | R 3 108 135 |
| Percentage saving | | 17.4% |

Table 5 shows a 17.4% cost saving by moving from a team of 5 medical practitioners to a team of 3 medical practitioners with 3 clinical associates. Scenario B(i) also shows that adding three clinical associates to a team of three medical practitioners will achieve the same increase in service delivery as adding two medical practitioners to the same team, but at a 17.4% lower cost. This means that three clinical associates in a team led by medical practitioners achieve a similar output as two medical practitioners.

If only **one medical practitioner post is converted**, a new team of four medical practitioners and three clinical associates can be formed: (Scenario B(ii). Chart 5)

Scenario B(ii). Chart 5: 4 Medical practitioners working with 3 clinical associates (each circle represents the work package of one clinician)



Scenario B(ii). Table 6: Cost comparison of 5 medical practitioners vs 7 clinicians

| | 5 medical practitioners | Combination of 4 medical practitioners + 3 clinical associates |
|---|-------------------------|--|
| Medical practitioner salaries per annum | R 3 648 930 | R 2 919 144 |
| Clinical associate salaries per annum | | R 918 777 |
| Total | R 3 648 930 | R 3 837 921 |
| Percentage saving | | -4.9% |
| Value of 1 FTE medical practitioner time gained | | R 729 786 |
| Actual percentage saved | | 14.1% |

This means that with an increase in costs of approximately R200 000 per annum, one (or the equivalent of one) medical practitioner in the new team of seven clinicians will be freed up for new tasks. As in scenarios A and B(i) the addition of three clinical associates to a team of four medical practitioners in scenario B(ii) will result in the same increase in service delivery as adding two medical practitioners, but here at 14.1% lower cost. It is important to note that the time used for supervisory tasks will decrease as each clinical team gains experience and gets to know and trust each other's competencies. Gradually the time gained will therefore increase and more new tasks may be added.

Appendix 5: History of clinical associates in South Africa

| Date | Actions | Documentation |
|---------------|---|--|
| 2001 | National Department of Health Strategy document of Health Human Resources | Pick Report - Recommendation to develop a mid-level health worker cadre in South Africa |
| 2002 | Cadre endorsed by Health Minister and Member of Executive Council (MINMEC) | HPCSA tasked with initiating the cadre |
| 2004 | Launch of Cadre with various Stakeholders | |
| 2005 | Clinical Associate Task Team developed, headed by FaMEC- family medicine etc | |
| August 2005 | Clinical Associate scope of practice developed -Outlined clinical practice of clinical associate, list of skills, core conditions | Proposed SOP, no indication of Gazetted |
| December 2005 | Draft SAQA Application Document -Outlined Rationale, purpose, SOP, Exit Outcomes, Curriculum | The Application to SAQA for registration of the clinical associate qualification |
| January 2006 | Proposed Curriculum -Integrated modules, taught at DH | Wits Curriculum document |
| February 2006 | Creation of Ministerial Committee on Clinical Associates | Professor JFM Hugo appointed as Chair |
| February 2006 | Business Plan created – Clinical Associate Programme with consolidated budget | Clinical Associate Business Plan and Budget |
| March 2006 | Wits application for development of BCMP Programme to University Senate | Application document |
| May 2006 | Request for Andrew Truscott to be appointed Honorary Lecturer for Clinical Associate Programme | Letter Ian to Dean |
| October 2006 | Mid-Level Worker Policy Workshop | Agenda, power points |
| November 2006 | HPCSA resolved for draft regulations for qualification of clinical associate be approved and submitted to the Minister | -set to create a register for clinical associate -develop SOP |
| December 2006 | Request by HPCSA Subcommittee for Undergraduate Education and Training to Wits for: -Curriculum, staff, facilities, assessments, entry requirements, SAQA outcomes to approve the degree | |
| January 2007 | Wits submits to HPCSA detailed clinical associate programme curriculum and degree training document | Curriculum document |
| February | Wits creates job descriptions for clinical associate PGM | Job description document |
| March | Dr Andrew Truscott appointed to post of Programme Coordinator for Wits | Letter of appointment |
| April 2007 | MOU developed between Wits and GDOH for clinical associate training | MOU |
| May 2007 | National Department of Health agrees to fund first two cohorts | Letter |
| June 2007 | Wits Senate approves BCMP degree | Letter |
| December 2007 | Regulations relating to the Qualifications for Registration of the Clinical Associate | Gazetted Health Professions Act of 56 of 1974 amended to include recognition of the clinical associate |

| | | |
|----------------------|--|---|
| January 2008 | WSU enrolls the first cohort of BCMP students – 23 | Prof. Ron Henbest takes the lead to start the program. |
| September 2008 | UP enrolls the first cohort of BCMP students – 56 | Dr Arrange leads the programme |
| June 2008 | NDOH reaffirms payment for the first cohort – funding from WHO | Letter |
| October 2008 | National Workshop for the Clinical Associate Programme | Agenda, Presentations |
| January 2009 | Wits enrolls the first cohort of BCMP students – 25 | Andrew Truscott, Zuki T, Kate Hammond, As staff |
| February 2009 | MOA between SANDF and Wits for clinical associate student training | MOA |
| March 2009 | GDOH Memorandum to establish District Education Centre and staff for clinical associate training | Memorandum letter |
| December 2009 | The untimely death of Dr Andrew Truscott. Dr Audrey Gibbs assigned as Coordinator of Wits Clinical Associate Programme | |
| January 2010 | Scott Smalley hired by Wits, Dr Kayode Akingba hired by NWDOH, Bright Sithole hired by GDOH, Dimpho Chwenyagae hired by SANDF to all start at Wits | |
| February 2010 | BCMP Undergraduate Committee initiated | Agenda |
| March 2010 | NDOH request for report of WHO fund spending 1M rand | Letter by A Crichton |
| April 2010 | HPCSA Accreditation review of Wits clinical associate programme | |
| May 2010 | AIHA HIV/AIDS Twinning Center initiates twinning partnerships for SA clinical associate programs with USA PA programs | WSU partners with Denver PA program, UP partners with Arcadia PA program, Wits partners with Emory PA program |
| October 2010 | HPCSA Report on Accreditation of Wits clinical associate BCMP PGM | Accreditation report |
| November 2010 | NDOH Job Description of clinical associate | NDOH Document |
| January 2011 | First clinical associates trained at WSU start work | |
| January 2012 | First clinical associates trained at UP and Wits start work | |
| 16-18 September 2012 | 5 th Annual IAPAE Conference at University of the Witwatersrand | |
| 2013 | Initiation of Professional Association of Clinical Associates of South Africa (PACASA) | |
| 2014 | First unified meeting of clinical associate programmes and Twinning Center PA partners | |
| 2015 | Establishment of Clinical Associate National Task Team (#2) | |
| May 2015 | Clinical Associate SOP Gazetted by Minister for 3-month comment period | |
| 17-19 Sept 2015 | 8 th Annual IAPAE Conference at the University of Pretoria | |
| October 2016 | Clinical Associate scope of practice signed by Minister of Health | Published in government gazette 40414 on 11 Nov 2016 |
| January 2017 | Clinical Associate National Task Team begins draft report | |

Appendix 6: Articles published on clinical associates and mid-level workers in South Africa

- Moodley, S. V, Wolvaardt, L., Louw, M. & Hugo, J. 2014. Practice intentions of clinical associate students at the University of Pretoria, South Africa. *Rural and remote health*. 14(2381):1–12.
- Hugo, J.F.M., Slabbert, J., Louw, J.M., Marcus, T.S., Bac, M., Toit, P.H. & Sandars, J.E. 2012. The clinical associate curriculum – the learning theory underpinning the BCMP programme at the University of Pretoria. *AJHPE*. 4(2):128–131. DOI: 10.7196/AJHPE.188.
- Doherty, J., Conco, D., Couper, I. & Fonn, S. 2013. Developing a new mid-level health worker: lessons from South South Africa’s experience with clinical associates. *Glob Health Action*. 6(19282). DOI: 10.3402/gha.v6i0.19282.
- Hugo, J. 2005. Mid-level Health Workers in South Africa: not an easy option. 148–159.
- Bac, M., Hamm, J., van Bodegraven, P., Pater, B. & Louw, J. 2017. A new healthcare profession in rural district hospitals: a case study of the introduction of clinical associates in Shongwe hospital. *South African Family Practice*. 59(1):14–17. DOI: 10.1080/20786190.2016.1248144.
- Hamm, J., van Bodegraven, P., Bac, M. & Louw, J.M. 2016. Cost-effectiveness of clinical associates : A case study for the Mpumalanga province in South Africa. *African Journal of Primary Healthcare & Family Medicine*. 8(1):1–6. DOI: 10.4102/phcfm.v8i1.1218.
- Memon, S., Louw, J., Bac, M., Hugo, J., Rauf, W. & Sandars, J. 2016. Students’ perceptions of the instructional quality of district hospital-based training. *African Journal of Primary Healthcare & Family Medicine*. 8(1).
- Doherty, J., Couper, I. & Fonn, S. 2012. FORUM: Will clinical associates be effective for South Africa ? *SAMJ*. 102(11):833–835. DOI: 10.7196/SAMJ.5960
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- Dreyer A, Gibbs A, Smalley S, Mlambo M, Pandya H. 2015. Clinical Associate students’ perception of the educational environment at the University of the Witwatersrand, Johannesburg. *African Journal of Primary Healthcare & Family Medicine*. 2015;7(1), Art. #778, 8 pages. <http://dx.doi.org/10.4102/phcfm.v7i1.778>
- Couper ID, Hugo JFM. Addressing the shortage of health professionals in South Africa through the development of a new cadre of health worker: the creation of Clinical Associates. *Rural Remote Health*. 2014;14(3):2874.

Appendix 7: Reflections on Clinical Associates

Message from Dr Brenda Stott

MBBCh (Wits), DipObst (SA), DipPEC (SA), H.Dip Fam Med (SA)

brenda@medicalminds.co.za

05/04/2017

To Whom It May Concern:

My experience with the clinical associates

During the last few years, I have had the opportunity to work with a few clinical associates. I first encountered these colleagues in the primary healthcare setting at the community healthcare centres. In this setting they were practising independently, seeing outpatients with a variety of presenting complaints. When they were unsure, they were not afraid to ask and knew their knowledge boundaries. I was very impressed with their clinical skills, holistic patient care, and treatment plans. Once a week, they would do the circumcision list, something that I had not previously been exposed to. Their ability to teach me these skills was admirable. With regards to conflict within the workplace, they always remained professional. They were always punctual and reliable. It was a pity that they were not allowed to do overtime in the casualty despite requesting to and despite the shortage of staff. The colleagues I worked with were hard working and a definite asset.

This is not the only setting where clinical associates can fit in. Their functions and abilities are vast and, if used efficiently, they can help to improve some of the challenges currently being faced by our healthcare system.

I have also had the privilege of being a frequent clinical skills examiner at university training level and I am always impressed by their professionalism and ability to perform skills. There is a focus on practical skills during their training and for them to pass their syllabus it is important they master this art. This could be utilised in the primary healthcare and emergency workplace to improve patient care.

All in all, I have enjoyed working with all the clinical associates that I have encountered, it has been a pleasure, and I hope to come into more frequent contact with these colleagues as their place and function within the workplace is established.

Sincerely,

Dr Brenda Stott

The role of clinical associates at a district level hospital and the experience working with them

By a registrar in family medicine

The clinical associates in Middelburg hospital play a big role as they are truly helpful especially since we have a shortage of doctors in this area. They are committed, competent and are willing to learn new things all the time. Having them make the workload manageable, the fact that they can perform a lot of minor procedures - it's a bonus for us; knowing that you can rely on them to complete the ward work, follow up on investigations, retrieve results, interpret them and inform the doctor if any urgent intervention is needed.

Having them around also helps with the reduction of patient waiting times at the outpatient department. Patients are seen on time as the doctor has no reason to spend hours in the ward frustrated that you have to take patient histories for new admissions, examine patients and do investigations. In surgical patients, they assist in minor procedures like I&Ds and circumcisions. They collect blood samples. In obstetrics and gynaecology, they assist during operations eg caesarian sections, laparotomy for ectopic pregnancies, surgical procedures and even preparing patients for theatre and they perform evacuation of the uterus on their own.

In casualties they assist with triage and attending to assault cases for suturing, putting up POP and backslabs, they help to put up intravenous lines for adults and babies as it can take forever to try and put up a drip for a child, they would be busy while the doctor is attending to other patients depending on the baby's clinical picture. They are also helpful during resuscitation.

In outpatients - especially for chronic medical patients, psychiatric patients, wellness patients and paediatric patients on chronic medicine - they help with renewal of scripts and the doctor just signs. They assist in educating patients eg diabetic patients regarding healthy eating habits and living an active life also, stopping bad habits like smoking and drinking alcohol.

I personally find having them in the hospital very useful even academic wise they have more practical ways of approaching a case, they stimulate and challenge me academically as they have a lot of information and their level of practice is very close to that of a general practitioner, they are skilled in making a diagnosis and managing patients.

They participate in the ongoing educational programs taking place in the hospital and contribute positively as we have students in our hospital. We are really fortunate because if you find yourself in a rural or level one hospital where there is nothing stimulating you to keep up with the new developments in medicine you do not grow or don't see the need to keep up with the latest medical discoveries. Working in an area like Middelburg it is sometimes difficult to attend workshops and even when some doctors go on leave it becomes a nightmare where you find yourself running around the whole hospital stretching beyond the limit just to try and render the service. Since the clinical associates came we do not feel the frustrations like before, we are able to move them around depending on the need.

I believe the whole country has similar frustrations - the population is growing and the number of doctors is not enough to treat them holistically. The fact that clinical associates are mainly trained by the department of family medicine is a plus because they do not focus on one particular specialty and they are taught to work in community-oriented primary health care.

The majority of patients present at hospitals are patients who should be attended to at clinics; making it

difficult to focus on those patients who need to be treated at level one hospitals. With the assistance of clinical associates, we are able to cope by referring them to the clinics.

It is just that sometimes we want to take advantage of their scope of practice is not really clear to some of the doctors; we end up wanting them to do more, treating them as if we are all doctors; expecting them to perform a little bit more than they should.

It would be great to have more qualified clinical associates in our hospital. As I said they are an asset; their presence and knowledge make a big difference. For them to also do calls is very helpful as normally we have only three doctors on call so when they are there it becomes four professionals on call.

Report on the functioning of clinical associates in Mpumalanga Province by Dr L Nkombua, HOD of Family Medicine in Mpumalanga

>>> Lushiku Nkombua 2016/09/22 12:42 PM >>>

Hi Martin,

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Graduate clinical associates are already doing excellent work in the Province. I am reliably informed that units in some hospitals in rural Ehlanzeni are run daily by clinical associates. Thereby allowing medical officers to do the outreach visits to clinics.

In Gert Sibande (Piet Retief and Ermelo), clinical associates run specific clinics under the supervision of the family physicians there. Here in Middelburg, clinical associates work in the wards, emergency room, OPD and PHC clinic under our (doctors and family physicians) supervision with the implication that patients waiting time has been tremendously reduced. All the six clinical associates in Middelburg do also work after hours in the emergency room and assist at surgical procedures in theater.

There is enough proof in the Province to demonstrate the positive contribution of the clinical associate to the district health system which the PHC is part and parcel of.

I hope you find this of assistance.

Regards,

Lushiku

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Report on the functioning of clinical associates in Mkhondo sub-district, Mpumalanga Province by Dr JJ Ongole, Family Physician

>>> Ongole Joven Jebio <jjongole@gmail.com> 2016/09/24 07:38 AM >>>

Dear Lushiku,

Good day and thanks for the update.

You have left out Piet Retief Hospital. The clinical associates are doing the following outstanding jobs:

1. Nathi Ndlovu running Driefontein CHC and remarkably revived a failed facility to the best in two years. The indicators in TB and HIV and Chronic disease care is topping in Mkhondo sub-district

2. Advice Mncube in his first year of practice is under my practice at Piet Retief Hospital and has comfortable and diligently taken control of Advance clinical Care in HIV/TB program, with 300 HIV/AIDS patients of failed regimen 1 & 2. The team he leads (professional nurses and data capturers) is targeting 50% viral load suppression in 6 months and 75% in 12 months

3. Nzimande Banele has for the last three years been VMMC clinical leaders and an audit conducted in August 2016 scored 100% in all 5 areas assessed. The adverse events in the VMMC programme dropped from 6% to 0.2% in two years. He is involved in training clinical associate students in VMMC and supervising their procedures.

4. David Nkwana is clinical head at Phola clinic, serving the largest population at Piet Retief. He has trained over 100 professional nurses in PC 101. In August, the district gave him the task as champion in the district for PC 101 and he will be busy training in Gert Sibande.

5. Banda Nomfundo - is diligently working in Paediatrics and driving the SAM programme, ensuring quality as the 10 steps are implemented. The SAM death is zero in 2016.

6. Out theatre has requested the Department of Family Medicine to place one clinical associate permanently there to assist with operations in theatre and in the long term be trained in anaesthesia. This will be provided in the next group posted at the hospital.

Regards

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CHC - Community Health Centre

PC 101 = Primary Care 101 (Algorithm driven healthcare for adults)

SAM = Severe Acute Malnutrition

VMMC = Voluntary Male Medical Circumcision