







# Public sector optometrists' perspectives on a decentralised model of clinical training for optometry in KwaZulu-Natal, South Africa



## Authors:

Nabeela Ebrahim<sup>1</sup>   
Fatima Karim<sup>1</sup>   
Mvelo Gasa<sup>1</sup>   
Kereshni Poonvaganum<sup>1</sup>   
Faaizah Gangat<sup>1</sup>   
Diane B. van Staden<sup>1</sup> 

## Affiliations:

<sup>1</sup>Discipline of Optometry,  
School of Health Sciences,  
University of KwaZulu-Natal,  
Durban, South Africa

## Corresponding author:

Diane van Staden,  
wallaced@ukzn.ac.za

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**Background:** Optometry training in KwaZulu-Natal has embraced a decentralised approach in keeping with other health professions. Decentralised clinical training enables health science students to gain clinical exposure at public hospitals during their undergraduate training using a service learning strategy. The perspectives of key stakeholders in this collaborative agreement between the provincial department of health and local academic institutions were unexplored.

**Aim:** The research aimed to explore KwaZulu-Natal's public sector optometrists' perspectives on decentralised clinical training in optometry.

**Setting:** This study involves optometrists employed within public health facilities in KwaZulu-Natal.

**Methods:** The research followed a qualitative design. Sampling was purposive, with the sample population including all public sector-employed optometrists within the KwaZulu-Natal Department of Health. Questionnaires were used to collect data, which were thematically analysed to gain insight into participants' perspectives relating to the decentralised clinical training (DCT) in optometry.

**Results:** In KwaZulu-Natal, DCT in optometry as a revised clinical training strategy is generally supported by public sector optometrists. It presents opportunities for expanded access to eye care for public sector patients and a mutual learning opportunity between students and practitioners. However, resources required for comprehensive optometric assessments are significantly lacking within the public health sector. Training for public sector optometrists who would be expected to serve as clinical educators was also an identified need.

**Conclusion:** While there are various challenges facing optometry practice within the public health sector in KwaZulu-Natal, decentralised clinical training holds promise for the improved eye care service capacity in KwaZulu-Natal.

**Keywords:** optometry; health science training models; public health sector; decentralised clinical training; eye health.

## Introduction

Health professions and education models are changing globally. Historical models of training were largely anchored in urban-based academic centres. Recently, however, training models are increasingly becoming diversified and decentralised, so that training for health professionals is integrated into the health system and accountable to communities.<sup>1</sup>

Optometry education was started in 1924 in South Africa by a group of British-trained practitioners. The original 2-year technical diploma was later increased to 3 years, then eventually in 1969 to 4 years.<sup>2</sup> Bachelor degree programmes followed in the mid-1970s and 1980s, with the most recent programme established at the University of the Free State in 2002. Most earlier programmes were modelled against programmes from developed countries, where clinical training was centralised with a limited exposure to rural or underserved communities.<sup>3</sup>

The scope of practice for optometrists in South Africa shifted towards a more clinical model in the early 2000s, with optometry programmes training to diagnostic level and, most recently, to therapeutics in 2016.<sup>4</sup> With access to eye care in South Africa still being very limited for most citizens,<sup>5</sup> transforming the historical model of optometry training (which was not designed to address the eye health needs of the majority of the population) became imperative. The profession

of optometry in South Africa was also historically excluded from the package of primary health care (PHC) services within the public health system.<sup>6</sup> *Primary eye care* (PEC) is the eye health component of primary health care. It is a broad concept, encompassing the prevention of potentially blinding eye diseases through PHC approaches. PEC includes the identification, with treatment or referral, of individuals with treatable causes of vision impairment and the diagnosis and treatment of common eye diseases.<sup>7</sup> Global and local advocacy efforts around the burden of blindness and the challenge of uncorrected refractive error supported the eventual inclusion of optometry into the public health system in South Africa in the early 2000s. The uptake of public sector optometry posts is, however, varied across provinces, with a notable imbalance in distribution across the country. In most provinces, however, optometrists now provide primary eye care as part of the package of health services available to public sector patients in South Africa. This has improved access to optometric care for public sector-dependent communities that historically suffered the burden of avoidable visual impairment simply due to inaccessible and/or unaffordable optometry services.<sup>6</sup> However, while improved access opportunities to optometry services within the public health sector have been created over the past 15 years, challenges remain in terms of the delivery of care. The human resource capacity for eye health service delivery remains insufficient to meet the demand,<sup>6</sup> evidenced by long waiting periods for routine bookings.

KwaZulu-Natal (KZN) has the second-highest population in the country, with the majority occupying rural settlements where expanded public health services are not easily accessible. As in most other provinces, there is a limited number of eye health personnel available within the public health sector. This includes ophthalmologists and ophthalmic nurses. Optometry practitioners within the public health sector, therefore, face systemic challenges resulting from a constrained health system, where in many instances the optometrist may be the only eye health practitioner within a facility having to address all cases presenting to the eye clinic. Furthermore, the continuum of care is negatively impacted by factors such as referral delays and patient dropout.<sup>7</sup>

Decentralised clinical training (DCT) is an emerging concept in South Africa.<sup>8</sup> Globally, there is a growing realisation that health profession education must address both the needs of an increasingly diverse society and disparities in health care.<sup>9</sup> South Africa's health system is structured to five levels of service; Primary Health Care (PHC) Clinics, District Hospitals, Regional Hospitals, Tertiary Hospitals and Quaternary and/or Academic hospitals.<sup>10</sup> Decentralised clinical training refers to the training of health science students outside of central academic training sites, within district-based training platforms.<sup>11</sup> Decentralised clinical training serves to strengthen the government's efforts at improving access to health services through strengthening PHC. Therefore, health sciences training in South Africa is seeing a shift towards a more primary health care-centred approach in line with global

calls for universal health coverage and equity of access.<sup>12</sup> Such models, known elsewhere as distributed training, have been adopted by other institutions in South Africa and across health science professions, including medicine, physiotherapy, occupational therapy and speech language pathology among others.<sup>13,14</sup>

Optometry training in KZN has historically been engaged in community-based service learning activities. However, until recently, these activities have largely been confined to the central metropolitan area. While the situation in KZN regarding access to eye health services has gradually improved over the past two decades, with more than 60 optometrists now serving public sector-dependent communities, access and contextual learning challenges remain.<sup>6</sup> Decentralised clinical training in optometry, which was first piloted in KZN in 2016 in response to a formal agreement around health sciences training and placements between the Provincial Department of Health and the province's largest university, serves to strengthen the existing human resource capacity working towards improved access to health services in the province.<sup>9</sup> As a service-learning model, DCT in optometry seeks to facilitate more effective training of optometrists, so that graduates are fit for practice and can contribute towards improved eye health outcomes and service delivery, especially in underserved areas, in line with the national health agenda.<sup>14</sup> In this model, senior optometry students undergo three week block placements within various health facilities in the province of KZN and are supervised by resident optometrists both in facility-based care and community outreach activities.

The aim of the study was to explore public sector optometrists' perspectives pertaining to a decentralised model of clinical training in optometry within the province of KwaZulu-Natal following its pilot implementation in 2016. The objectives were to establish the practitioners' support for the proposed model, as well as opportunities or challenges it may present. The study further aimed to identify areas requiring capacity development in support of both a quality decentralised clinical training programme in optometry, as well as optometry service delivery within the public health sector in KZN.

## Methods

This research followed a qualitative design within an interpretive paradigm.<sup>15</sup> The study population included all optometrists employed and working within the public health sector in KZN. A non-probability, purposive sampling strategy was used, given the key informant status of public sector-employed optometrists in KZN who were the subjects of interest in this study. Participants had to be appropriately registered with the Health Professions Council of South Africa and have a minimum of 1 year of unsupervised clinical practice experience. All optometrists employed within the public health sector were invited personally when visiting the pilot DCT facilities or via email to participate in the study. Semi-structured questionnaires

were used to gather demographic data from participants and explore their perceptions and experience in relation to decentralised clinical training in optometry within KZN, as well as their lived experiences<sup>16</sup> relating to optometry services in the public health sector. Data were anonymised via coding to protect the participants' identities. Data analysis was approached thematically, beginning with coding,<sup>17</sup> pattern recognition and identification of themes.

## Ethical considerations

Ethical approval was granted by the University of KwaZulu-Natal's Biomedical Research Ethics Committee and the KZN Department of Health, and informed consent was sought from participants prior to their participation in the study.

## Results

Thirteen optometrists meeting the inclusion criteria participated in the study. All respondents were Black African, aged between 22 and 35 years old, and with less than 10 years of working experience in the public health sector. Most respondents had 2–4 years of work experience in the public sector, with almost half having exclusively public sector work experience. There was a relatively even gender mix in the sample (7 males and 6 females) representing 6 of the 11 health districts in KZN (Figure 1).

Areas of interest included respondents' level of support for a DCT training model in optometry, perspectives relating to optometry practice within the public health sector and sentiments around the supervision of undergraduate students.

Two main themes emerged from the data:

- *Theme 1: Optometry practice within the public health sector*

Theme 1 encompassed descriptions of the optometry practice context within the public health sector in KZN, which is the context for DCT. It highlighted high patient volumes and exposure to a wide range of clinical cases as dominant features but also a lack of resources and restricted scope of practice, which negatively affected the delivery of eye care services (Figure 2).

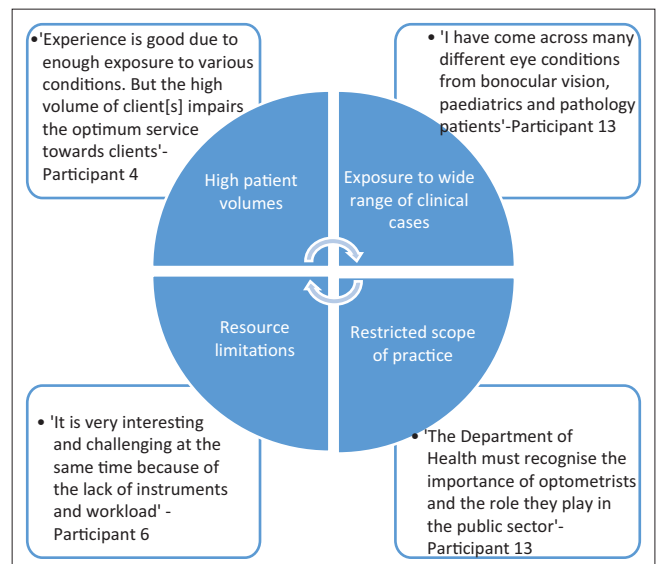
There were varying reports regarding the participants' personal experiences of working within the public health sector, but the cumulative experience was best represented by Participant 13 as:

'Experience has been good and bad. Good in that I have experienced or come across many different eye conditions from binocular vision, pediatrics and pathology patients. Bad because we do not have at least minimum equipment required to perform different techniques. Hence our diagnosis and service delivery are affected.' (Participant 13, Male, Optometrist with four years of public sector service)



Source: Adapted from Sibiyi N, 2009. A Model for the Integration of Primary Health Care Services in South Africa. Durban University of Technology.<sup>18</sup>

**FIGURE 1:** Map showing distribution of respondents across KwaZulu-Natal districts.



**FIGURE 2:** Reported optometry practice experiences in KwaZulu-Natal's public sector.

Most optometrists described their overall experience positively – either exciting, enlightening or interesting ( $n = 9$ ). A few ( $n = 4$ ) cited their experiences more negatively as either challenging, disheartening or frustrating. Reasons for the positive responses included the exposure to rich ocular

pathology cases that presented to public hospitals, in part related to the large volume of eye patients at eye clinics within public health facilities.

Issues that presented frustration included the lack of resources such as equipment and transport to community clinics, as well as professional rivalry (mostly with ophthalmology). Some participants described their limitations related to practices, where in many cases, optometry practitioners largely functioned in a refractive rather than a diagnostic role, as pathology cases were often referred to medical practitioners.

'I work in an eye clinic where there are ophthalmic nurses, a medical officer and other nursing staff. When a patient is referred to the eye clinic, the nurses do the screening and then refer pathology to the medical officer and refractions to me. I mainly end up refracting only, which can sometimes get boring.' (Participant 3, Female, Optometrist with three years of public sector service)

Almost all participants reported that the quality of eye care services delivered at public hospitals was negatively affected by the lack of equipment to perform comprehensive optometric assessments. Booking lists and wait times for spectacle orders were also noted as challenges.

*Theme 2: Opportunities and challenges for decentralised clinical training in KwaZulu-Natal*

This theme encompassed two subthemes of 'Context-appropriate training' and 'Capacity'.

### Subtheme 1: Context-appropriate training

Most participants expressed positive sentiments towards the DCT programme (Figure 3) where undergraduate students are placed within health facilities in districts for 3-week block

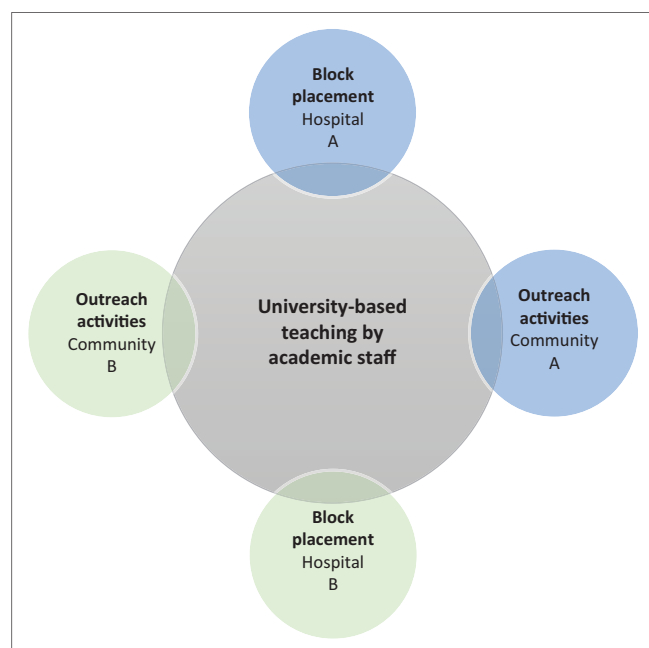


FIGURE 3: Concept of decentralised clinical training.

clinical training supervised by resident optometrists in hospitals, with exposure to community outreach activities. They said that it was a good idea and progressive strategy, which gave undergraduate optometry students exposure to the real-world context. One respondent noted, 'it is a great collaboration that will benefit the students training like medical students' (Participant 8, Female, Optometrist with seven years of public sector service).

Practitioner perspectives were that DCT not only presented an opportunity for students to develop clinical skills but to serve communities in need. While high patient volumes were an overwhelming reality and challenge for most participants in the course of their work, the reported resource-constrained context presented positive learning opportunities for optometry students and benefits for resident practitioners:

'They will get exposure to the working environment and what to expect out in the field.' (Participant 7, Male, Optometrist with four years of public sector service)

'There are things that I just know but can't really explain to students why I do things in a certain way. Having the students has also helped me recap on a few things.' (Participant 3, Female, Optometrist with three years of public sector service)

It was further expressed that training at the community level has the potential to expand access to eye services. Through student involvement, optometry services could reach more areas, with more patients likely to be served. Practitioners also felt that exposure to the health system during undergraduate training will give students a realistic view of optometry within the public health sector and support the idea of optometrists being viewed as an essential part of the health care team. Participants also felt that community-based training promoted a multi-disciplinary approach to care and will likely raise awareness among community members around the importance of eye health:

'It will help produce well-skilled optometrists.' (Participant 8, Female, Optometrist with seven years of public sector service)

Despite the perceived benefits of DCT even in the current context, it was emphasised by participants that there needs to be a uniform standard of optometric practices among public, academic and private sectors, which is not the case in present reality.

### Subtheme 2: Capacity

A lack of equipment was the main challenge reportedly facing optometrists working within the public health sector in KZN. The majority of participants reported seeing an average of 20 patients per day, with an ever-increasing demand for services. Under-resourcing in terms of equipment, coupled with the high burden of ocular disease encountered, prevented optometrists from fully managing all cases presenting to eye clinics at public hospitals, where in many cases there were no ophthalmologists to follow through on disease management. This meant that patients needed to be referred to facilities offering higher levels of care, imposing

transport costs on either the patient or the hospital and a time delay in terms of case management. DCT was noted as potentially serving as an advocacy tool for optometry development within the public health sector, highlighting the needs and the challenges facing eye care delivery in the province through this service learning approach:

'I think it is a great initiative as the Department of Health will also recognize the importance of optometrists and the role they play in the public sector.' (Participant 13, Male, Optometrist with four years of public sector service)

In general, the feeling from practitioners was that student clinicians also served as additional human resources, which allowed more patients to access eye care services within the public health system. However, in some cases, the pace was reportedly negatively affected as students generally work at a slower pace compared to experienced practitioners. Despite the change in context between the academic environment and the public health sector, the majority of participants were of the opinion that optometry students possessed the necessary competencies to manage a wide variety of clinical conditions presenting to public sector hospitals.

Overall, student involvement increased throughput of patients and therefore reportedly improved efficiency of the eye care services within facilities. However, participants cited the lack of resources and underdevelopment of optometry within the public health sector as the biggest challenge to achieving optimal outcomes for DCT in optometry. In many instances where equipment such as slit lamps were available, students had to share these with other practitioners such as ophthalmologists or medical officers. This too slowed down the pace of clinical examination. In addition, other resources required for an academic level of training were extremely scarce. The restricted scope of practice was also reported by almost all optometrists, where in some cases this was imposed by ophthalmologists working within the same facility who did not permit optometrists to practice at a diagnostic level, even where all relevant equipment was available and accessible.

*Capacity for supervised training* also emerged in this subtheme.

A practitioner with more than 3 years of working experience in the public health sector, and who had previously been exposed to supervising students within a public hospital in KZN, reported on their readiness to supervise students on DCT rotations: 'I don't think I am ready completely but will learn as I go' (Participant 3, Female, Optometrist with three years of public sector service). Participant 11 (Female, Optometrist with two years of public sector experience) who had also previously supervised students though as a clinical resident at the university, said 'Having just graduated, I did not feel equipped enough to teach students'. This was in contrast to Participant 13 (Male, Optometrist with four years of public sector service) who reported, 'I qualified just a year before my first supervising experience. It was good due to that my theory and practical was still fresh (in my mind) and we were on par with students'.

Participants expressed a need for the standardisation of knowledge through academic training workshops for public sector optometry practitioners who participate in DCT. They felt that this would aid in addressing service learning and clinical education needs of the programme. Most, however, reported confidence in their ability to supervise students as part of a DCT programme.

Overall, participants felt that DCT in optometry would be beneficial to eye care service delivery with KZN's public health sector and expressed overall support for this model of training.

## Discussion

This research set out to explore KZN public sector optometrists' perspectives of a decentralised model of clinical training in optometry currently being implemented in the province. The research highlighted important contextual considerations which could potentially impact the success of DCT as an academic clinical training initiative. While all participants were positive about the potential of DCT to enhance optometry student's clinical training, concerns over the lack of adequate public sector resourcing for optometry in terms of equipment and space were not surprising, in keeping with the findings from Maake and Moodley.<sup>6</sup> Importantly, most practitioners are not able to conduct comprehensive optometric assessments for various reasons, which could limit students' clinical learning opportunities when placed on the DCT platform.

The demographic profile of participants was in keeping with Ramson et al.<sup>19</sup> However, while junior practitioners are generally more in touch with the theory as compared to optometrists employed for a longer duration, they lack comprehensive experience as clinicians and potentially the relevant maturity to serve as clinical teachers for undergraduate optometry students. This underscores the need for the training and capacity development of public sector clinicians who are expected to take on roles as clinical educators within a DCT strategy.

High patient volumes were an overwhelming reality for most participants. This is understandable as the coverage of optometry services within the public health sector in KZN remains a challenge. Overall, though, it was felt that the public sector practice context lends itself to experiential clinical learning and skills development as compared to the academic centre, particularly relating to the volume of and exposure to a wide range of cases encountered. Within DCT, students serve as additional human resources. However, the slower pace of students, and the need to train in accordance with regulatory standards, may affect throughput rates in public sector eye clinics. Despite this, the strategy still aids in addressing backlogs at public health institutions that suffer capacity challenges. The sentiment that student participation in service delivery may slow down the pace at eye clinics may also suggest a need for the improved clinical efficiency

of students and the need to adopt a more case-based approach to clinical practice, rather than the clinical routine of information gathering, which is the academic approach they are familiar with.<sup>20</sup> It may also be an indication of the mismatch between the student's habitual practice environment within the university-based clinic and the realities of public sector optometry services. These two worlds are far apart, and students initially struggle to consolidate their clinical approach within this system. This, therefore, underscores the argument around 'fit-for-purpose' graduates, which has led to DCT models in South Africa.<sup>8</sup>

The fact that most practitioners expressed confidence in their ability to supervise undergraduate students within a DCT model is encouraging and holds promise for the expansion of this model both in KZN and elsewhere in the country, particularly with an incremental increase in student intakes and inadequate staffing and/or infrastructure capacity at universities.<sup>21</sup> The capacity of public health institutions for DCT in optometry is admittedly limited because of the lack of equipment, which affects the capacity to train optometry students in accordance with standards as defined by the Health Professions Council of South Africa.<sup>22</sup> However, it must be acknowledged that most optometrists in the public sector are young<sup>19</sup> and, therefore, may need additional support and mentorship for their own development to be able to competently supervise students under their care. Therefore, clinical educator models<sup>23</sup> must be considered to promote standardised training and practice approaches.

Oduntan (2014) noted that the refinement of optometry curricula is necessary. This is because most countries in Africa have large rural areas; therefore, there is a need to emphasise primary health care within curricula. Increasing access to refractive services results in the reduction of the burden of vision impairment within a population.<sup>19</sup> This has the potential to improve the quality of life and facilitate access to education and social interaction.<sup>24</sup> Oduntan<sup>25</sup> also highlighted the requirement for more schools of optometry in needy areas,<sup>2</sup> and extending the training of optometrists to rural areas through decentralised models that will serve to increase access to services for rural populations and encourage graduates to practice in more outlying areas. This is in keeping with the DCT model currently being implemented in KZN. Even with the development of new schools of optometry in Africa, institutions are constrained by capacity limitations at campus training facilities. Recently, Malawi and Kenya have identified the need to collaborate with hospitals in service learning approaches for optometry. DCT in optometry, therefore, presents an opportunity for optometry training in Africa to be at the forefront of collaborative solutions to expanding access to eye care for underserved communities dependent on public health services. DCT also presents capacity development opportunities, with the introduction of students working alongside practitioners in hospitals appearing to support the continuing professional development of these practitioners through shared knowledge. This shift in the

clinical training approach further supports the rationale for scope of practice expansion in optometry to include therapeutics, as optometrists placed in outlying public health facilities face the burden of avoidable blindness, and in the absence of the specialist capacity in most areas, optometrists should serve as front-line interventionists in the diagnosis and management of ocular diseases. However, the resourcing challenge must be addressed if DCT in optometry is to succeed as a fit-for-purpose training and developmental eye health strategy in KZN.

## Conclusion

Decentralised clinical training is a strategy that is generally supported by public sector optometrists in KZN. While the delivery of comprehensive eye health services within the public health sector remains a challenge, the strategy proposes a social value; in that, it facilitates increased access to eye care services for rural, largely poor populations, and promotes context-appropriate training. Furthermore, exposure to large patient numbers and a wide range of clinical cases offers exceptional learning opportunities for students. However, scope of practice concerns linked to the lack of resources must be addressed for the strategy to be effective and appropriate to academic training standards. The planning and rollout of student clinical placements should, therefore, include institutional and practitioner capacity assessments to select sites that address minimum standards for the clinical training of undergraduate students.

DCT in optometry, therefore, appears to hold benefits for not only undergraduate students but also for patients and practitioners within the health system as a whole. It is a strategy that supports universal eye health, by taking optometry services to people who need them most. However, if DCT is to be comprehensively embraced as a service-learning model for optometry beyond KZN, then infrastructure and resourcing for effective eye health service delivery within the public health sector nationally need to be addressed.

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The authors declare that they have no financial or personal relationships that may have inappropriately influenced them in writing this article.

### Authors' contributions

N.E., F.K., F.G., K.P. and M.G. were responsible for developing the proposal, data collection and preliminary data analysis under the supervision of D.v.S., who formulated the research article.

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## Data availability statement

Data sharing is not applicable to this article.

## Disclaimer

The views and opinions expressed in this article are those of the authors and do not necessarily reflect the official policy or position of any affiliated agency of the authors.

## References

1. Ellaway R, Bates, J. Distributed medical education in Canada. *Can Med Educ J*. 2018;9(1):e1–e5.
2. Oduntan OA, Mashige KP, Kio FE, et al. Optometric education in Africa: Historical perspectives and challenges. *Optom Vis Sci*. 2014;91(3):359–365. <https://doi.org/10.1097/OPX.0000000000000153>
3. Minto H. Optometry in developing countries. *Optom Vis Sci*. 2008;85(2):74–77. <https://doi.org/10.1097/OPX.0b013e318165e4a4>
4. Ramkissoon P. Recognition of ocular therapeutics in optometry. *Vision Magazine* [serial online]. 2017 [cited 2018 Nov 13]. Available from: <http://visionmagazineonline.co.za/2017/09/23/recognition-of-ocular-therapeutics-in-optometry/>.
5. Naidoo KS, Jaggernath J, Ramson P, et al. The prevalence of self-reported vision difficulty in economically disadvantaged regions of South Africa. *Afr J Disabil*. 2015;4(1):11. <http://doi.org/10.4102/ajod.v4i1.136>
6. Maake ME, Moodley, VR. An evaluation of the public sector optometric service provided within the health districts in KwaZulu-Natal, South Africa. *Afr Vision Eye Health* [serial online]. 2018;77(1):9 [cited 2018 Nov 13]. Available from: <https://avehjournal.org/index.php/aveh/article/view/407>.
7. Gilbert C. The importance of primary eye care. *Community Eye Health*. 1998;11(26):17–19.
8. Van Staden D. Decentralised clinical training in optometry: A developmental strategy for eye health in Kwa-Zulu Natal? *Prim Health Care Res Dev* [serial online]. 2018. <https://doi.org/10.1017/S1463423618000397>
9. Kumagai AK, Lypson ML. Beyond cultural competence: Critical consciousness, social justice and multicultural education. *Acad Med*. 2009;84(6):782–787. <https://doi.org/10.1097/ACM.0b013e3181a42398>
10. Gauteng Department of Health. Steve Biko Academic Hospital. South Africa's Healthcare Structure [homepage on the Internet], n.d. [cited 2019 Mar 23]. Available from: <https://www.sbah.org.za/index.php/15-main-page/27-south-africa-s-healthcare-structure>.
11. Gaede B. Decentralised clinical training of health professionals will expand the training platform and enhance the competencies of graduates. *S Afr Med J* [serial online]. 2018;108(6):451–452. <https://doi.org/10.7196/SAMJ.2018.v108i6.13214>
12. Caldwell RI, Aldous C. The National Health Insurance, the decentralised clinical training platform, and specialist outreach. *S Afr Med J*. 2017;107(1):39–40. <https://doi.org/10.7196/samj.2017.v107i1.12008>
13. Van Schalkwyk S, Blitz J, Couper I, et al. 2018. Consequences, conditions and caveats: A qualitative exploration of the influence of undergraduate health professions students at distributed clinical training sites. *BMC Med Edu*. 18:311. <https://doi.org/10.1186/s12909-018-1412-y>
14. Govender P, Chetty V, Naidoo D, et al. Integrated decentralized training for health professions education at the University of KwaZulu-Natal, South Africa: Protocol for the I-DecT Project. *JMIR Res Protoc*. 2018;7(1):e19. <https://doi.org/10.2196/resprot.7551>
15. Babbie E, Mouton J. The practice of social research. South African ed. Oxford: Oxford University Press; 2007.
16. Kvale S. Interviews: An introduction to qualitative research interviewing. Thousand Oaks, CA: Sage; 1996.
17. Patton MQ. Qualitative evaluation and research methods. 2nd ed. Thousand Oaks, CA: Sage; 1990.
18. Sibiyi N, 2009. A Model for the Integration of Primary Health Care Services in South Africa. Durban University of Technology.
19. Ramson P, Govender P, Naidoo K. Recruitment and retention strategies for public sector optometrists in KwaZulu-Natal Province, South Africa. *Afr Vision Eye Health* [serial online]. 2016;75(1):10. <https://doi.org/10.4102/aveh.v75i1.349>
20. Amedo A, Adade S, Koomson N, et al. Influence of visual impairment on the quality of life: A survey of patients reporting at the low vision centre of the eastern regional hospital of Ghana. *J Ophthal Sci*. 2016;1(3):1–13. <https://doi.org/10.14302/issn.2470-0436>
21. Kotecha P. Revitalising higher education in the SADC region. Towards a common future. Research findings from four SARUA studies [homepage on the Internet]. Southern African Regional Universities Association, 2008 [cited 2018 Nov 15]. Available from: <https://www.sarua.org/?q=content/chapter-1-revitalising-higher-education-sadc-region>.
22. Health Professions Council of South Africa. Minimum equipment lists required for conducting a visual examination [homepage on the Internet] [cited 2018 Nov 15]. Available from: [https://www.hpcs.co.za/Uploads/editor/UserFiles/downloads/optometry/minimum\\_equipment\\_list\\_1209.pdf](https://www.hpcs.co.za/Uploads/editor/UserFiles/downloads/optometry/minimum_equipment_list_1209.pdf).
23. Higgs J, McAllister L. Educating clinical educators: Using a model of the experience of being a clinical educator. *Med Teach*. 2007;29(2–3):e51–e57. <https://doi.org/10.1080/01421590601046088>
24. Patel V, Groen G, Patel Y. Cognitive aspects of clinical performance during patient work up: The role of medical expertise. *Adv Health Sci Edu*. 1997;2(2):95–114. <https://doi.org/10.1023/A:1009788531273>
25. Oduntan OA, Mashige KP, Hansraj R, et al. Strategies for reducing visual impairment and blindness in rural and remote areas of Africa. *Afr Vision Eye Health*. 2015;74(1):a25. <https://doi.org/10.4102/aveh.v74i1.25>