

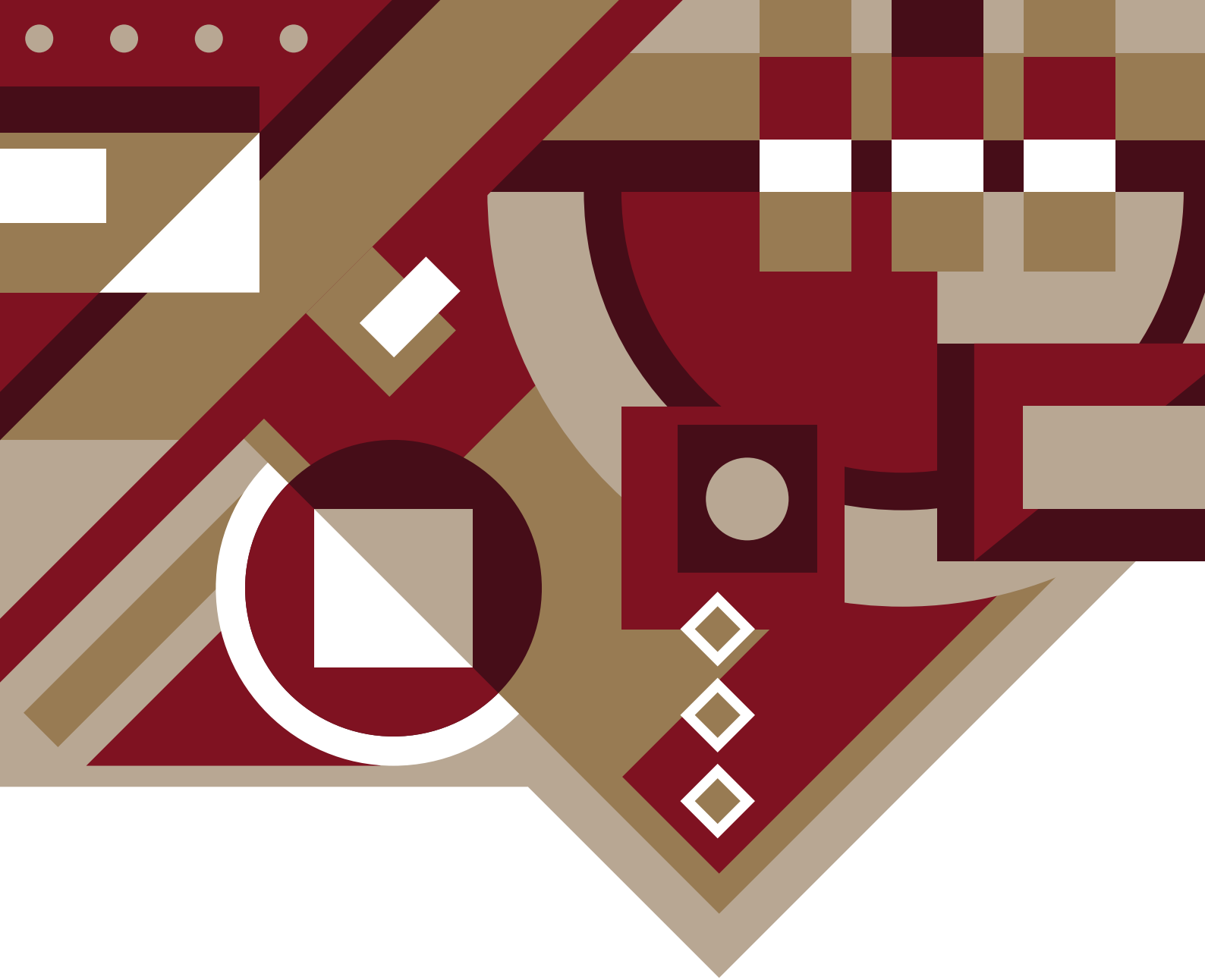


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SOLUTIONS FOR CHANGE

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From the EDITOR'S DESK

The Board of Healthcare Funders is pleased to present the fourth edition of the South African Health Journal.

This edition of the South African Health Journal focuses on topical issues affecting the healthcare system, inter alia leveraging technology for cost-effective interventions and increasing access, and the importance of primary healthcare and how we can achieve this. Other papers include one that spotlights the importance of continuous professional development for healthcare professional providers and a case study of a funder response to failing reserve levels.

Whyte et al highlight healthcare funding issues, noting the deep inequities across the globe and that health systems generally tend to underfund primary healthcare relative to secondary and tertiary care. The same authors go on to share how these gaps may be addressed. In another paper, Naude shares how her organisation is increasing accessing to primary care using registered nurses, who are supported by general practitioners at initial point of contact while leveraging technology.

Staying with the theme of technology, Kriel et al share how new technologies and machine learning are being used to address the shortage of human resources for health in eye care. This paper provides insights into how technology is being used to standardise care, create access and also reduce the cost of eye care. Christian et al share their journey of implementing a health information exchange, highlighting why patient electronic health records are essential for a healthcare system. One of the major benefits highlighted is reduced waste in the system.



Waste in the healthcare system was also partly to blame for the troubles experienced by one South African scheme. Whyte et al highlight interventions by this medical scheme to address failing reserves. This was achieved via the establishment of a targeted multi-stakeholder forum to address the scheme's deteriorating financial position.

The success of these interventions show their importance if healthcare funders are to achieve sustainability and reduction of waste.

Continuous professional development of healthcare practitioners is vital for a health system. Maleka and Van der Linde suggest that compliance in this area leads to better quality of care and reduced waste, among other benefits. They also note the disparities in compliance requirements as well as the challenges faced by professionals to comply in the South African context. Medical schemes are challenged to play a role in providing an affordable training platform as this aligns with their funding objectives.

We would like to thank all the authors for sharing their knowledge and all the peer reviewers for their hard work in making this journal a reality.

Charlton Murove

Head of Research, Board of Healthcare Funders



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PRIMARY HEALTHCARE: Addressing financing reforms for universal health coverage

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EXECUTIVE SUMMARY

Introduction: Providing essential and accessible health services through primary healthcare (PHC) is crucial for the implementation of universal health coverage (UHC) within the private sector.

Methods: A retrospective literature review on global and local health expenditure and PHC spending.

Discussion: In 2019, 34% of total health expenditure in South Africa was spent on 14% of the population, which has voluntary health insurance. Despite this, access to care is not always available as benefits are governed by the medical scheme and option plan the member belongs to. Individuals are exposed to out-of-pocket payments and the risk of financial difficulty when medical benefits are depleted.

The majority of public sector spending in 2019/20 was on hospital-based care (61%) and public health services (33%), which include prevention and treatment of disease, maternal and child health, and disease surveillance. Private sector expenditure on PHC providers, general practitioners and dentists amounted to less than 20%, with the most spent on specialists, hospitals and medicines dispensed, which accounts for over 80% of the cost per age band. This indicates the need for greater investment in PHC funding. The existing funding methods display a trend towards specialist and hospicentric care, rather than a PHC approach.

Conclusions and Recommendations: There is a need to structure healthcare financing to prioritise PHC to prevent, detect and treat diseases early, reducing the need for hospital and specialised services. Healthcare financing requires mechanisms that incentivise the provision of quality at PHC level. Urgent consideration should be given to funding evidence-based, outcome-measured PHC to achieve UHC.

INTRODUCTION

Primary healthcare (PHC) creates the foundation for the achievement of universal health coverage (UHC) and the sustainable development goals (SDGs), providing the foundation for essential health functions. Providing these basic services plays a crucial role in addressing the health needs and social determinants of health among vulnerable population groups (Tangcharoensathien et al, 2018; World Health Organization, 2022). According to Van Weel and Kidd (2018), investment in PHC has 'resulted in improved access, equity in health services, prevention of disease and reduced upstream health costs'.

A paradigm shift is needed to ensure that PHC is provided through cost-effective interventions that yield good health outcomes. Many high-income countries have successfully implemented UHC by providing access to PHC services. (World Health Organization, 2019), Private providers within these countries provide healthcare services through public sector or private funding sources. Expanding coverage necessitates the use of all healthcare service delivery platforms within the health system. Both the public and private sectors, therefore, have an important role to play in establishing PHC services.

The need for PHC dates back to the World Health Organization's (WHO) 1978 declaration of Alma Ata (WHO, 1978). Many lower-income countries, however, continue to struggle to provide basic and essential PHC. This may be due to many factors. The delivery and financing of PHC in any setting will be determined by fiscal capacity, population health needs and political priorities (Hanson et al, 2022) Due to underfunded public sector budgets and poor service delivery, private healthcare is accessed through out-of-pocket payments resulting in some instances of extreme financial difficulty for those who need care. This dilemma has driven many health experts to advocate for UHC and therefore protection from financial hardship.

Despite evidence that demonstrates the benefits of PHC and established mechanisms of implementation, South Africa has yet to implement these practices. The Department of Health is currently establishing the National Health Insurance (NHI) fund. The NHI Bill is in the legislation process and envisions providing UHC within the country. Although UHC has been a topic of discussion for many years, very little has been done to support its implementation. In order to gain traction a huge investment in the funding of PHC is required through a shift in current PHC budgets.

This article aims to review the principles of healthcare financing and progress made towards the financing of PHC services.

HEALTHCARE EXPENDITURE

The cost of healthcare is high. In 2019, countries globally spent an estimated 9.83% of gross domestic product (GDP) on healthcare. High-income countries spent 12.49% and low-income countries 4.88% (World Bank Data, 2022). In South Africa in 2019, 9.1% of GDP was spent on health with approximately 40% of spending occurring within the private sector. (World Bank Data, 2022) The cost per capita of healthcare is strikingly higher in high-income countries at \$3310 compared to \$40 per capita in low-income countries (Table 1). Globally the average cost per capita is \$1121.97. In 2019, South Africa spent far less on health per capita (\$546) than the global average. This amount is also less than what was spent 10 years ago in 2012 (\$658) (World Bank Data, 2022).

Table 1: Cost of Healthcare

HEALTHCARE EXPENDITURE	HIGH INCOME COUNTRIES	LOW INCOME COUNTRIES	SOUTH AFRICA
Total cost of healthcare per capita (US\$)	3310	40	546
Cost of PHC per capita (US\$)	1312	24	92
Government spending on PHC (%)	59	13	32

When looking at the cost of PHC, both the proportion and the amount spent by governments in higher-income countries are much higher (59%) than in low-income countries (13%). In South Africa, 33% of government spending in 2019 was on PHC, which included public health services such as prevention and treatment of disease, maternal and child health, and disease surveillance. A considerable amount of spending was on hospital-based services (61%) (Statistics South Africa, 2022). The 2019/2020 treasury budget on healthcare indicated a relatively smaller PHC budget compared to that of hospital services (National Department of Health, 2022). Similar funding trends were seen within the private sector. In 2019 PHC providers', general practitioners' and dental practitioners' expenditure was much lower than for specialist providers, hospitals and medicine claims combined, which accounted for 80%. Private hospital costs show an increasing rise since 2014 (Council for Medical Schemes, 2020). These figures indicate the need for greater investment in funding PHC services and the standardisation of an essential benefit package. The existing financing methods of funding display a trend towards specialist care and are hospicentric, rather than PHC-orientated. Over time, spending will be unsustainable if this trend is not addressed.

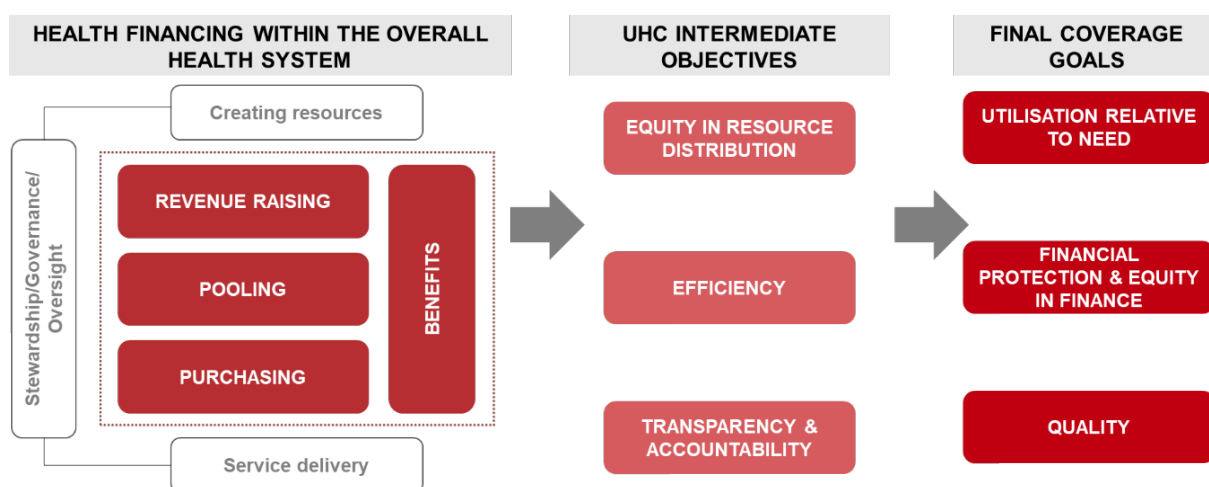
PRINCIPLES OF HEALTHCARE FINANCING

The health system and the services it provides are largely dependent on the resources allocated to the services it needs. In many middle-to-low-income countries, public sector financing uses budget-based methods to allocate resources for healthcare (Hanson et al, 2022). This is often dependent on the budget provided by the minister of finance. In South Africa, taxation is the main source of revenue for public sector healthcare. Private sector financing is through medical schemes, which are governed by the Medical Schemes Act [No.131 of 1998] (South African Government, 1998). Contributions are paid by members to the scheme, which then funds their healthcare based on a range of benefit option plans. This form of funding is generated by the working population and pays little attention to financial equity and sustainability. Member contributions to the scheme are paid for by individuals or through employer subsidies. The cost of healthcare, however, often exceeds what medical schemes pay for and as a result scheme members face out-of-pocket payments. These can either be in the form of additional user fees or copayments. The cost of healthcare, especially PHC, has become unaffordable due to the high costs of provider fees and medication (Council for Medical Schemes, 2020; Hanson et al, 2022).

Adequate funding within the health system is required to generate the required resources to enable equitable access and to reduce payments at the point of care for PHC. Sufficient revenue can be generated through the pooling of resources allowing for cross-subsidisation and active strategic purchasing of benefits (World Health Organization, 2022). In the private sector, this can be achieved through the amalgamation of medical schemes and the introduction of more affordable option plans for PHC.

The WHO healthcare financing matrix (Figure 1) can be used to guide PHC financing and monitor progress towards UHC. Intermediate coverage goals can be measured by assessing (i) equity in resource distribution, (ii) efficiency, and (iii) transparency and accountability. UHC would be achieved once final coverage goals have been met.

Figure 1: World Health Organization Financing Matrix



Despite this, members of private medical aids are not always able to access care when in need as their benefits are governed by the medical scheme and option plan that they belong to. These individuals are exposed to out-of-pocket payments and the risk of financial difficulty when medical benefits are depleted. Private sector expenditure on PHC providers, general practitioners and dentists amounted to less than 20%, with expenditure spent on specialists, hospitals and medicines dispensed accounting for over 80% of the cost per age band.

Based on the above findings, it appears that most health problems are only dealt with at a hospital level after patients have presented with serious complications. If South Africa can spend more on PHC, health expenditure will drop as conditions will be identified sooner and treated before serious complications and/or death can occur.

FINANCIAL SYSTEMS TO SUPPORT PHC

An emphasis must be placed on PHC financial arrangements to deliver health services. The raising and pooling of funds require a system designed to adequately channel funds to the most appropriate services. A review of PHC funding should consider the actual amount spent on PHC. For this to be done, a standard and consistent definition of PHC should be used to establish the actual spending on services. The design of a PHC benefit package will allow for the ring-fencing of the PHC budget.

This system should be guided by governance processes such as financial planning, accountability, transparency, epidemiology and equity that are correlated with health outcomes. Higher levels of spending on PHC are generally associated with higher levels of service coverage. However, spending more on PHC does not necessarily represent a good investment unless it is spent on evidence-based interventions that are cost-effective and yield good health outcomes.

One method of funding PHC services is through line-item budgets. This method is commonly used within the public sector of many low-income countries (Hanson et al, 2022). This method is fairly fixed and does not provide equitable coverage. Fee-for-service (FFS) payments are the predominant method of payment in the private sector in South Africa. It is a cause of concern that they are associated with many out-of-pocket payments and supplier-induced demand.

Arrangements such as contracting providers through networks are commonly used by funders. Contracted providers provide services through the FFS model, but the quality of care and health outcomes are rarely

[1] PRIMARY HEALTHCARE: ADDRESSING FINANCING REFORMS FOR UHC

measured by funders. Funders, therefore, purchase services without knowing the outcome of the care provided. Providers are therefore not accountable for the services they are paid for. In many instances, care is either not measured or the availability and reliability of data are lacking (Competitions Commission South Africa, 2019).

A shift towards a capitation-based system to manage health priorities allows providers room to coordinate care according to need. This system encourages the provision of quality care by incentivising good health outcomes, as the cost of caring for a healthier population is reduced (Hanson et al, 2022). In addition, a pay-for-performance incentive to provide quality care through rewards and bonuses for achieving defined goals and targets can be used. Funding mechanisms should therefore support health needs and incentives. A blended provider payment method composed of capitation and performance-based payments has been used with success to provide PHC services without user fees at the point of care (Hanson et al, 2022).

PHC AND COVID-19

The COVID-19 pandemic took the world by storm. Many countries were not prepared to deal with the high numbers of cases and associated mortality. As of December 2022, there have been more than 650 million cases and 6.6 million deaths globally. To date, 64% of the global population has been vaccinated (Google News, 2022). Mass vaccination campaigns have been rolled out with success, managing to curb the spread of the virus. Many health systems were challenged by the large-scale rollout of vaccines, together with the ongoing need to provide care for chronic diseases and other services such as child and maternal health. In South Africa, coordinating and providing these services involved a joint collaboration between both public- and private-sector service providers and funders. Vaccinations were readily available and accessible with the rollout conducted in phases, with at-risk groups such as healthcare workers, essential service workers, the elderly and those with comorbidities given priority. Vaccinations were free at the point of service and an electronic database was implemented to manage and monitor vaccinations. Since the vaccine was only available through the Department of Health, distribution to vaccination sites required a coordinated response to ensure adequate supply and preservation of the vaccine cold chain. Insured individuals were charged for vaccinations if they were registered with a medical aid scheme. PHC plays a major role in the emergency response to pandemics and a strong and structured service delivery platform is therefore required (Sarti et al, 2020)

RECOMMENDATIONS

Health financing reforms based on the nature, extent and distribution of diseases, together with evidence-based policies advocating for affordable benefit options orientated toward PHC, require urgent consideration and action in order to achieve UHC. A blended model is recommended, as outlined by the Lancet Commission on PHC Financing (Hanson et al, 2022). This comprises the following:

- A financial system that enables monitoring of PHC expenditure;
- Capitation to prioritise healthcare according to need;
- Budget items for fixed costs;
- FFS for high-priority conditions that are at risk of being underfunded when capitation is used; and
- Incentives for providing quality care based on the meeting of goals and targets.

CONCLUSION

PHC services have assisted many countries to achieve UHC. Spending on healthcare requires a greater investment in PHC, especially in low-income countries. Healthcare financing needs to prioritise PHC to prevent, detect and treat diseases early, thus reducing the need for hospital care and specialised services.

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LEADING CHANGE

The importance of leadership and governance

Continuous education units' requirements per registration category of practitioners registered with the Health Professions Council of South Africa

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EXECUTIVE SUMMARY

Introduction

Continuous professional development (CPD) is a legal requirement (in terms of section 26 of the Health Professions Act of 56 of 1974) for healthcare practitioners registered with the Health Professions Council of South Africa (HPCSA). CPD requires practitioners' engagement after obtaining formal qualifications with the purpose of keeping abreast with skills and knowledge benefiting them as well as their patients. The CPD rules, CPD guidelines and accreditors' guidelines are some of the regulatory frameworks pertaining to CPD.

Methodology

A description of the CPD guidelines (2007 version), more specifically, the continuous education units (CEUs) and the CPD activities required for each of the 12 professional boards, is provided.

Results

The HPCSA has 12 professional boards and 85 registration categories. Annual CEU requirements differ across professional boards and even among registration categories ranging between 30 CEUs (48.2%; n=41), 15 CEUs (49.4%; n=42), and 10 CEUs (2.3%; n=2).

Conclusion

Healthcare practitioners registered with the HPCSA have a legal obligation and professional responsibility to be compliant with the CPD requirements. Practitioners become compliant by ensuring engagement with CPD activities and meeting CEU requirements by their respective professional boards and registration category.

BACKGROUND

Health practitioners registered with the HPCSA, herein referred to as registered health professionals, undergraduate-level education is a minimum requirement to be initially equipped for clinical practice post-qualifying. However, the knowledge and skills acquired are not enough to sustain them throughout their careers (Karas et al., 2020). CPD is coordinated, collaborative and applicable learning undertaken by registered health professionals after qualifying (Karas et al., 2020). CPD is beneficial for them, their patients, the community and healthcare funders (Fleet et al., 2008). A patient who is assessed and treated by an up-to-date and knowledgeable registered health practitioner will receive the best care and recommendations for their condition (Fleet et al., 2008). This, in turn, reduces patient dissatisfaction, which may lead to complaints of unprofessional conduct and even litigation (Fleet et al., 2008). Healthcare funders also benefit in that registered health practitioners who are knowledgeable about clinical aspects, ethical rules, ethical guidelines, billing, and ethical dilemmas are most likely to conduct themselves in an ethical manner and avoid wasteful and fruitless expenditure (Fleet et al., 2008).

The value of CPD was further realised globally during the COVID-19 pandemic. Health practitioners worldwide were faced with the task and responsibility of safely providing clinical care to patients with an emerging disease, educating the workforce about how to diagnose and manage the virus, and engaging communities to reduce infections through public health interventions (Rahman et al., 2022). It was through CPD programmes that practitioners were able to speedily update their knowledge and skills on virology and the COVID-19 virus (Sklar et al., 2021).

In South Africa, CPD for registered health professionals is prescribed (in terms of section 26 of the Health Professions Act of 56 of 1974) (Dhai and Mkhize, 2006). They are required to be CPD compliant for continued registrations (Health Professions Act of 56 of 1974). Professional boards may impose various sanctions if registered health professionals are not CPD compliant, including suspension from the register (Health Professions Act of 56 of 1974). It is, therefore, critical for them to understand the CEUs required by their respective professional boards and registration category in order to be CPD compliant. This study aimed to describe CPD requirements for registered health professionals.

METHODOLOGY

Quantitative research design was adopted to ascertain CEU requirements per the HPCSA's professional boards and registration categories comparatively.

Furthermore, a retrospective analysis of the CPD guidelines (2007 version), the CEUs required for each of the 12 professional boards and registration categories was undertaken.

- **Sampling:** The HPCSA's 12 professional boards and 85 registration categories across the various professional boards.
- **Data analysis:** Descriptive statistics were used to describe data in a table format.

RESULTS

The HPCSA has 12 professional boards and 85 different registration categories. CEU requirements vary among professional registration categories, requirement ranges are; 30 CEUs 48.2% (n=41) are required annually. Additionally, 15 CEUs are required for 49.4% (n=42) of the registration categories, while 2.3% (n=2) require 10 CEUs annually. CEUs are valid for a 24-month period from the date that they are acquired.

PROFESSIONAL BOARD AND REGISTRATION CATEGORY	CLINICAL CEUS	ETHICAL CEUS	TOTAL CEUS PER ANNUM
Environmental health			
DA	13	2	15
TT, OH	25	5	30
Dietetics and nutrition			
DT, NT	25	5	30
Emergency care practitioners			
ANA, ANT, ECT, ECP, OECO	25	5	30
BAA, ANT	13	2	15
Environmental health practitioners			
HI	25	5	30
HIA, FI	13	2	15
Medical and dental			
AN, BE, CA, DP, HA, KB, MP, MS, MW, SMW, PH	25	5	30
GC	13	2	15
Medical technology			
MT	25	5	30
GT, SGT, LA, SLA	13	2	15
Occupational therapy, medical orthotics/prosthetics and art therapy			
AT, OS, OT	25	5	30
AOS, OSA, OTB, OTT	13	2	15
OB, SOS, SOT	9	1	10
Optometry and optical dispensing			
OD, OP	25	5	30
SOD, SOP, OR	13	2	15
Physiotherapy, podiatry and biokinetics			
BK, CH, PT	25	5	30
MA, PTA, PTT, RM, SCH, SPT	13	2	15
Psychology			
PMT, PRC, PSB	25	5	30
PM	13	2	15
Radiography and clinical technology			
DR, KT, KTG	25	5	30
EE, KTA, RLT, RSDR, SEE, SDR, STK, SRLT	13	2	15
Speech, language and hearing			
AU, GAK, SGG,SGK, ST, STA	25	5	30
AM, SAU, SGA,SHA, SSTA, STB	13	2	15

*See annexure 1 for abbreviations

DISCUSSION

There are various ways available for registered healthcare providers to obtain CEUs. They may obtain CEUs by engaging in either level one and/or level two CPD activities (CPD guidelines, 2017). Level one CPD activities are once-off activities and CEUs are allocated according to time spent engaging the CPD activity, one CEU per hour with a maximum of eight CEUs per day. Level one CPD activities include: breakfast meetings, presentations, formally arranged hospital or inter-departmental meetings or updates, case study discussions, formally organised special-purpose teaching/learning ward rounds (not including routine service ward rounds), formally organised special-purpose lectures that are not part of a business meeting, mentoring/supervision, peer supervision and activities that are specific to certain professions, conferences, symposia, refresher courses, short courses without a measurable outcome, international conferences, regular interest group meetings with a minimum of six meetings per year, morbidity and mortality meetings, workshops and lectures, and seminars on ethics (CPD guidelines, 2017).

Level two CPD activities are structured learning programmes by an accredited institution of higher education. Level two CPD activities include short courses, postgraduate degrees, diplomas and certificates that are recognised as additional qualifications by the relevant professional board (CPD guidelines, 2017).

Registered health professionals should make use of technology to access CPD activities to improve their knowledge and skills if they possess the required resources to access technology (Ngenzi, Scott and Mars, 2021). CPD-compliant health practitioners become competitive across clinical and ethical practice; they experience improved competency and career enhancement and achieve further professional growth (Crispino and Rocha, 2021).

However, there are challenges with CPD programmes in many countries: CPD activities are expensive and can therefore become inaccessible for many registered health practitioners. Furthermore, some employers do not support employees by allowing them time off to attend CPD engagement activities (Crispino and Rocha, 2021). Health funders are key stakeholders in healthcare and therefore have an important role to play in the CPD of registered health practitioners (Davis and McMahon, 2018). Health funders may provide support by continuously making CPD activities available and accessible at no cost. They may adopt more affordable strategies, such as providing CPD webinars and peer-reviewed articles to registered health professionals (Orlik et al., 2022, Smirnova et al., 2019).

CONCLUSION

Registered healthcare providers should take responsibility for their own CPD by becoming cognisant of the CEU requirements of their respective professional board and registration category. Practitioners should further continuously engage in CPD activities as CPD, by its nature, is continuous and not a once-off activity. Health funders have a role to play in supporting registered health practitioners' CPD. CPD benefits the practitioner, their patients and the community at large.



Registered healthcare providers should take responsibility for their own CPD by becoming cognisant of the CEU requirements of their respective professional board and registration category.

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ABBREVIATIONS: ANNEXURE ONE

Dental Therapy and Oral Hygiene (DOH)

Dental Assistant (DA)
Oral Hygienist (OH)
Dental Assistant (Supplementary)(SDA)
Dental Therapist (TT)

Dietetics and Nutrition (DNB)

Dietitian (DT)
Nutritionist (NT)

Environmental Health Practitioners (EHP)

Food Inspector (FI)
Environmental Health Practitioner (HI)
Environmental Health Assistant (HIA)

Emergency Care Practitioners (EMB)

Ambulance Emergency Assistant (ANA)
Paramedic (ANT)
Basic Ambulance Assistant (BAA)
Emergency Care Assistant
Emergency Care Practitioner (ECP)
Emergency Care Technician (ECT)
Operational Emergency Care Orderly (OECO)

Medical and Dental (MDB)

Biomedical Engineer (BE)
Clinical Assistant (CA)
Dentist (DP)
Genetic Counsellor (GC)
Genetic Counsellor (GR)
Clinical Biochemist (KB)
Medical Practitioner (MP)
Medical Biological Scientist (MS)
Medical Biological Scientist (MW)
Medical Physicist (PH)
Supplementary Medical Scientist (SMW)

Medical Technology (MTB)

Cyto-Technician (CT)
Medical Technician (GT)
Laboratory Assistant (LA)
Medical Laboratory Scientist (MLS)
Medical Technologist (MT)
Supplementary Medical Technician (SGT)
Supplementary Laboratory Assistant (SLA)

Occupational Therapy, Medical Orthotics/Prosthetics and Arts Therapy (OCP)

Assistant Medical Orthotist and Leath Worker (AOS)
Arts Therapist (AT)
Orthopaedic Footwear Technician (OB)
Medical Orthotist and Prosthetist (OS)
Orthopaedic Technical Assistant (OSA)
Occupational Therapist (OT)

Occupational Therapy Assistant (OTB)
Occupational Therapy Technician (OTT)
Supplementary Medical Orthotist and Prosthetist (SOS)

Optometry and Optical Dispensing (ODO)

Dispensing Optician (OD)
Optometrist (OP)
Orthoptist (OR)
Supplementary Optical Dispenser (SOD)
Supplementary Optometrist (SOP)

Physiotherapy, Podiatry and Biokinetics (PPB)

Biokineticist (BK)
Podiatrist (CH)
Masseur (MA)
Physiotherapist (PT)
Physiotherapy Assistant (PTA)
Physiotherapy Technician (PTT)
Remedial Gymnast (RM)
Supplementary Podiatrist (SCH)
Supplementary Physiotherapist (SPT)

Psychology (PSB)

Psycho-Technician (PM)
Psychometrist (PMT)
Registered Counsellor (PRC)
Psychologist (PS)

Radiography and Clinical Technology (RCT)

Radiographer (DR)
Electro-Encephalographic Technician (EE)
Clinical Technologist (KT)
Graduate Clinical Technologist (KTG)
Radiation Technologist (RLT)
Restricted Supplementary Diagnostic Radiographer (RSDR)
Supplementary Diagnostic Radiographer (SDR)
Supplementary Clinical Technologist (SKT)

Speech, Language and Hearing (SLH)

Audiometrician (AM)
Audiologist (AU)
Hearing Aid Acoustician (GAK)
Supplementary Audiologist (SAU)
Supplementary Hearing Aid Acoustician (SGAK)
Community Speech and Hearing Worker (SGG)
Speech and Hearing Correctionist (SGK)
Speech and Hearing Assistant (SHA)
Supplementary Speech Therapist and Audiologist (SSTA)
Speech Therapist (ST)
Speech Therapist and Audiologist (STA)
Speech Therapy Assistant (STB)

WHO IS THE PRIMARY HEALTHCARE PRACTITIONER REALLY, and how can we use this resource to build capacity for the appropriate level of care?

AUTHOR

Nichola Naude

PEER REVIEWER: Buddy Modi

EXECUTIVE SUMMARY

Of late there has been a great deal of emphasis placed on the role of the primary healthcare practitioner and his/her role in co-ordination of care. I suspect that each writer/speaker in this space has a vision in their mind of who this role is played by, but I wonder if we really have consensus around who it should be. The emphasis in many circles has been on the general practitioner being the overseer of care. While I don't disagree with this position; I would like to propose a different approach to co-ordination of primary healthcare.

This paper postulates that the ideal way for primary healthcare to work in South Africa is by means of triage – entry to the system should always be at the lowest appropriate level of care, with upward referral when necessary, enabling the deployment of higher levels of care to where they are most needed.

It also attempts to show how technology has successfully enabled this process so that it can happen in a seamless manner, while at the same time creating an opportunity to optimise resources, save money and increase access to care. We propose that this same technology can enable multidisciplinary teams to work together effectively to provide appropriate care as and where required.

The result – a more sustainable level of care for the individual patient, as well as increased access to care for many people, in a country where inequality of care and a shortage of resources significantly impact our ability to provide a service that our Constitution considers to be everyone's right.

BACKGROUND

NHI and primary healthcare

Primary healthcare (PHC) is a whole-of-society approach to health that aims to ensure the highest possible level of health and well-being and their equitable distribution. It requires a focus on people's needs as early as possible along the continuum from health promotion and disease prevention to treatment, rehabilitation and palliative care, and as close as feasible to people's everyday environment (World Health Organization (WHO), 2018).

According to the WHO, about 930 million people worldwide are at risk of falling into poverty due to out-of-pocket health spending of 10% or more of their household budget. Scaling up PHC interventions across low- and middle-income countries could save 60 million lives and increase the average life expectancy by 3.7 years by 2030 (WHO, 2021).

According to Better Health Channel (2015), PHC represents the first point of contact a person has with the health system when they have a health problem. It can refer to a broad range of health services provided by medical professionals in the community. The general practitioner (GP) is a PHC provider, as are nurses, pharmacists and allied health providers, like dentists. PHC entails the provision of health services, including diagnosis and treatment of a health condition, and support in managing long-term healthcare, including chronic conditions like diabetes. PHC includes seeing health professionals to help an individual maintain good health, with regular health checks, health advice when there are concerns, and support for ongoing care (Better Health Channel, 2015).

Is there a gap between the South African Constitution and the art of the possible?

According to the South African Constitution, everyone has the right to have access to healthcare services, including reproductive healthcare, and no one may be refused emergency treatment. But what is the best way to roll this out in an environment of limited resources such as South Africa?

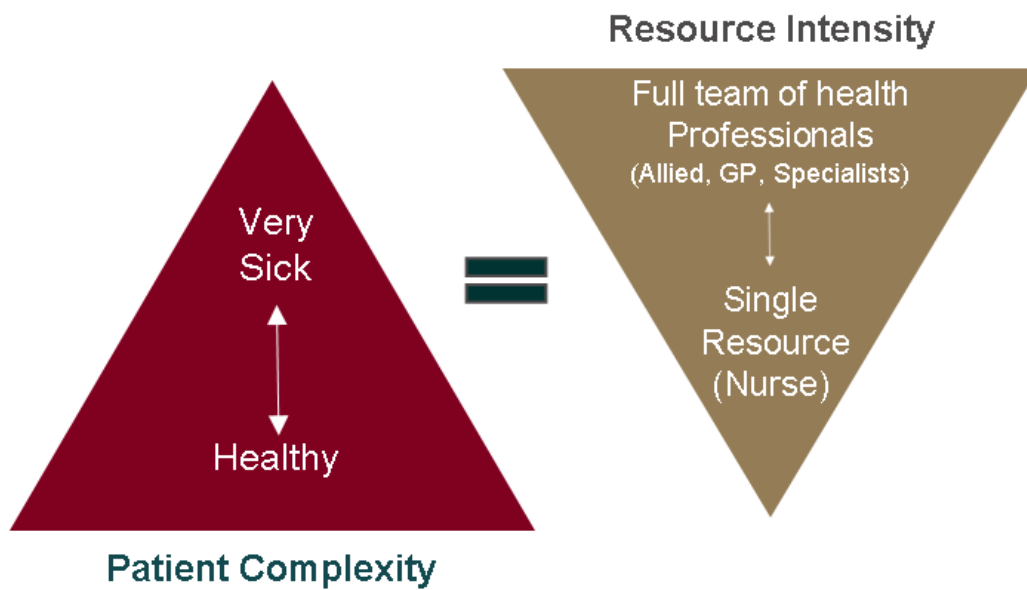
The South African healthcare system is characterised by a complex interplay between patients, providers and third-party funders. Spending more on healthcare largely produces worse health outcomes due to overservicing of patients and inefficient allocation of resources to health needs. South Africa has historically been split into two systems, the costly private sector that is utilised by around 27% of the population (this figure includes medical scheme-funded and private payers) and the state-funded sector serving the rest (Rensburg, 2021). In the government-funded space, PHC has tended to be provided by the nursing practitioner, whereas in the private space, it has become the norm for patients to access GPs or even specialists directly. Driven by fee-for-service payments, fragmentation between providers leads to overservicing and creates duplication of work when patients move between providers; in other words, medical scheme claims are increasing and real membership of schemes is in decline. The result – fewer and fewer people can afford private healthcare.

Our challenges are, simply put, a shortage of resources, the division of services between state and private sectors, escalating costs and overservicing in the private sector vs lack of access in the public sector.

OUR SOLUTION

A nurse-initiated, virtual team

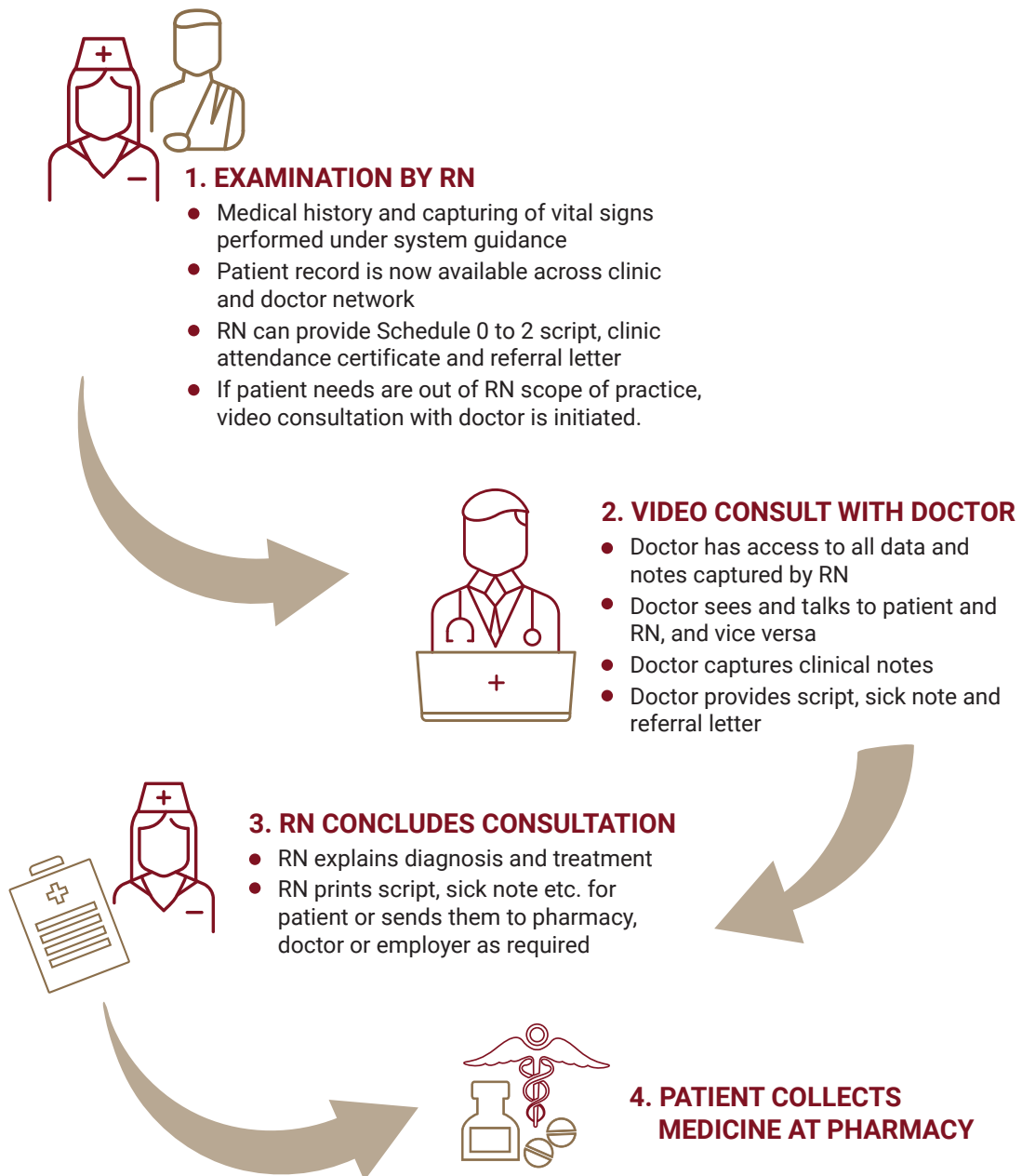
Our position is that the registered nurse (RN) should be established as a low-cost entry point into the health system and a way of triaging and directing care appropriately. Care coordination at basic level and optimal resource usage are key to improved delivery and accessibility of care. Nurse-led care can be linked to nominated GPs for assistance when scope of practice is reached, leading to an effective, efficient, team-based approach.



The Dis-Chem answer to this is Dis-Chem Clinic Connect. This primary care solution is engineered to lower overall costs and improve health outcomes. Clinic Connect, which is driven out of Dis-Chem's pharmacy clinics, delivers primary care via nurse and doctor teams, centred around a single view of the patient across the network.

Web-based technology sets the RN up as the single and lowest-cost entry point into the healthcare system; importantly the nurse has the long-term relationship with the patient.

THE PROCESS



[3] WHO IS THE PRIMARY HEALTHCARE PRACTITIONER REALLY...

RESULTS

Over the two years that the Dis-Chem Clinic Connect solution has been operational in a live environment funded by both cash-paying patients and medical scheme funders, the following has been seen:

A low pass-through rate

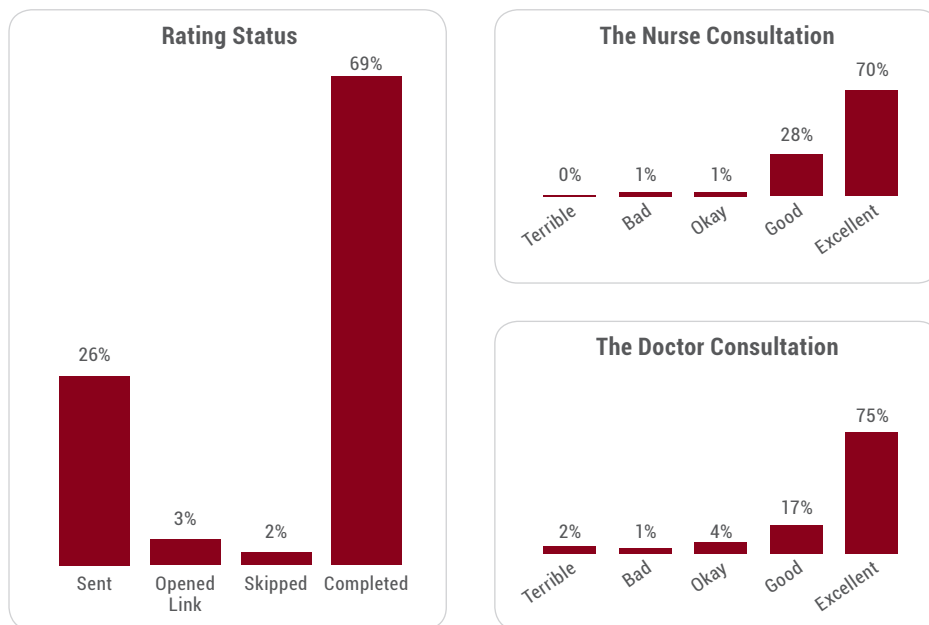
From our database we can see that only 25% of patients visiting a videomed-enabled clinic are passed through to the doctor consultation

Nurse consultations	GP virtual consultation	Pass-through rate
+2 000 000	+180 000	25%

**Data since March 2018*

Superior level of patient satisfaction

Patients moving through the process flow of RN to virtual doctor are given the opportunity to rate the service provided – the ratings below, taken over the last rolling year demonstrate the superior level of patient satisfaction in this environment.



Rating status indicates the response status of the patient, please note that ratings are currently only being requested of patients who have experienced the end-to-end service.

DISCUSSION

Access to and parity of care

Increasing access through seven-day a week availability, the RN collects clinical data, delivers care up to the limit of their scope of practice and escalates to GP (virtual or physical) based on clear criteria. Telemedicine technology can enable local nurses anywhere to work together as teams with a carefully selected remote doctor network, potentially enabling access for patients in both metropolitan and more rural areas. The GPs are responsible for oversight of primary care and clinical maintenance of all stable patients.

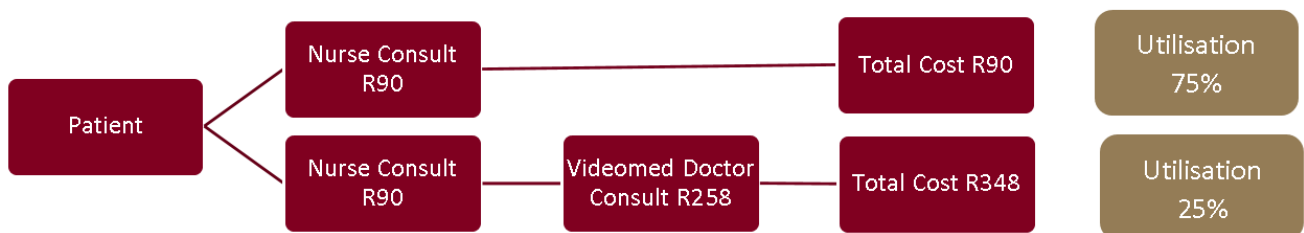
Parity of care is another key aspect of this service as the low-tech platform used allows enabled RNs anywhere across the country to access the same doctor network. This doctor network is continually scaling to handle the increasing volumes while at the same time maintaining a service level of four minutes waiting time once the doctor is called into the consultation, which easily beats the waiting time for most public and private sector providers. This agreed service level is as negotiated by Dis-Chem with the doctor network as the maximum amount of time we believe patients should be required to wait for their virtual doctor consultation.

Efficient use of resources

By directing patients to the appropriate level of care, this process can free up scarce resources (in this case the doctor) to provide service to a larger part of the currently underserved population. This is clearly shown by the 25% pass-through rate of patients from RN to videomed doctor consultation. One might be bold enough to assume that the level of patient satisfaction shown by these patients would see them using the service again in the future.

Cost-savings

The RN-led consultation has been shown to decrease the length of the doctor consultation significantly, creating efficiency in utilisation of doctors' time and reducing the cost to patient/funder. These savings are passed on to the funder/patient by means of the costing model below:



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Based on an average R405 for a standard GP consultation, even a RN plus videomed doctor consultation represents a cost-saving; the average across the group is R154.50, meaning an average saving of R250.50 per patient.

The intent of this comparison is not to compare the care provided by a GP to the care that can be provided by a RN, but rather to show how access to an appropriate level of care can be extended to a larger proportion of the population at a lower cost than in the traditional ways done in South Africa (especially in the private sector). At the same time our approach utilises technology and triage to enable the deployment of a scarce resource (i.e. the doctor) to where it is most needed.

CONCLUSION

In conclusion, I believe that our lived experience has shown the success of a different way of addressing co-ordination of care. We have seen how successful triage at RN level and how videomed technology, which is expanding daily, has allowed parity of care across many different segments of society; we believe there are many more ways that this can be used.

Rather than taking the oversight role away from the GP, as some might postulate this does, our approach frees up the GP's time to allow them to practise the level of care for which they are trained, while more effectively utilising a resource, the RN, that is more accessible geographically and economically.

In a seamless manner that we would never have dreamed of 50 years ago, we can now optimise resources, save money and significantly increase access while allowing multidisciplinary teams to work together effectively to provide appropriate care.

The result - a more sustainable level of care for the individual patient, increased access to care for many, increased equality of care across a larger group and more optimal use of scarce resources. The intent - to allow us to more effectively provide a service that our Constitution considers to be everyone's right.

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ISO LESO NETWORK: engaging new technologies in eye care

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PEER REVIEWER: Tebogo Phaleng

EXECUTIVE SUMMARY

Since the introduction of the intraocular lens and advances in cataract surgery over the past three decades, the field of eye care has seen the advent of several non-invasive disease detecting and monitoring technologies in recent years. These technologies offer developing nations new tools to bring more care to more people.

Recording photographs of the fundus or back of the eye has taken on new meaning. Algorithms, artificial intelligence and deep learning have made screening for abnormalities and monitoring change or disease progression of the retina and optic nerve part of routine eye examinations.

The benefits of early detection include limiting the loss of vision and downstream costs in the management of chronic ocular diseases, while enabling a vastly improved rural outreach (Sharafeldin et al, 2017).

The sensitivity and specificity of these technologies have now earned them FDA and EU approval and have opened the door for wider screening initiatives, early interventions and cost-saving protocols via co-management of stable cases at primary care level.

The challenge for the eye care profession and healthcare funders is to embrace these technologies in the most cost-effective way and enable screening and diagnostic initiatives that will improve health outcomes while ensuring that they are managed in a secure and verifiable structure that will withstand legal challenge.

NON-INVASIVE ADVANCED TECHNOLOGY IN OCULAR DISEASE SCREENING

The professions of optometry and ophthalmology provide comprehensive eye care services to the South African population. Almost 400 ophthalmologists and 4 000 optometrists serve mostly the private sector (Maake and Moodley, 2018).

The underfunded and overburdened public sector must cater for most of the uninsured population, now estimated to be between 80 and 85% of the population. Fewer than 120 ophthalmologists and 270 optometrists are employed in the public sector. Hospitals with eye care units amount to just 62 (Majola, 2019).

In South Africa various factors influence access to tertiary care such as:

- Poor accessibility and cost of travel.
- High cost of private care for the uninsured.
- Long waiting times, especially for cataract surgery in the public sector.
- Chronic disease monitoring and patient compliance challenges due to the above.

With a limited number of ophthalmologists and almost 10-fold the number of optometrists, it is in the public interest that the two professions seek to improve access to integrated care.

Optometric scope has been expanded in most first-world countries to improve primary care services and remove the burden from tertiary ophthalmology institutions and practitioners. In addition, the monitoring and follow-up of post-ophthalmology interventions are conducted by an optometric cohort that is more accessible.

The South African optometric profession has been granted the rights to an expanded scope as part of a review of the healthcare needs of the population. This includes diagnostic and therapeutic scope privileges that will potentially add many more providers to primary eye care disease management.

Realising this potential will require realignment of optometric academic programmes, which should include:

- Overhaul of the undergraduate academic programme in line with a medically based optometry degree, akin to dentistry.
- Clinical training within public sector ophthalmology departments so that the requisite skills are developed in tandem with a structured internship.
- Aligning optometric training as a primary care continuum to ophthalmology training.
- Introduction of optometry/ophthalmology co-management structures as a key element of public sector internship, expanding into the private sector in line with NHI principles.

Innovations in eye care have resulted in the Iso Leso optometric network developing a technology-driven platform that promotes shared care between the professions.

Iso Leso and leading medical scheme partners have spearheaded investment in the value-add that modern technology can offer in the field of early detection, appropriate referral and ongoing management of chronic ocular diseases.

It is imperative that eye care is managed via an integrated model between all stakeholders. A common platform that serves as an interface between primary and secondary care allows improved and structured communication and/or shared care between these professions, which will lead to improved health outcomes (Ford et al, 2023).

[4] ENGAGING NEW TECHNOLOGIES IN EYE CARE

Iso Leso has developed such a platform, which has been piloted over the past six years. It has the modality to include new developments such as the recent inclusion of artificial intelligence (AI) algorithms.

Primary data input by optometrists with secondary review by ophthalmologists offers an integrated approach that benefits the patient. The platform offers AI reporting within 60 seconds and ophthalmology panel reporting within 24 hours. This process allows unprecedented eye care access. It is important to note that with this structure, urban and rural patients have the same access, which mitigates many of the challenges mentioned above.

The aim of this technology-driven platform is to mitigate the burden of disease, develop or refine responsive intervention protocols, and allow healthcare funders to offer benefits that are based on verifiable data and measured outcomes.

The chronic ocular diseases that have the highest impact are the priority, namely diabetic retinopathy (DR), glaucoma, age-related macular degeneration (AMD) and cataracts (WHO, 2022). Current evidence-based myopia control guidelines in the 7-12-year-old group will soon form part of this platform.

The web-based process will allow for the collection of crucial data (baseline and ongoing) that allow for classification/stage of disease that is then linked to appropriate management protocols (historic, current and future).

Furthermore, it provides a system that allows for stable cases to be managed at primary care level, yet sensitive enough to respond to markers that identify the unstable cases requiring secondary care.

This is made possible through a structured and verifiable platform based on the concept of co-management between primary and secondary eye care in partnership with eye care providers, healthcare funders and health authorities.

Furthermore, measuring intervention outcomes against baseline data provides invaluable information of the effectiveness of the intervention as well as where costs can be reduced. Based on the former, it will be possible to remodel reimbursement models that will guide behaviour towards an improved standard of care and bring more care to more people.

THE ROLE OF AI

AI is here to stay and evolve in most, if not all, industries. It is incumbent on the healthcare industry to manage this in a manner where it supports the principles of universal health care, based on sound ethics and evidence.

Some DR algorithms are marketed as stand-alone products where positive results require a secondary template to be submitted, confirming the DR but not grading it. Others make use of a human interface to reduce false positives and grade or classify DR, thus prioritising management timelines.

Management protocols differ vastly, depending on the grade of disease that will predict the risk of progression (table 1 and 2), the primary care provider may or may not be comfortable grading with confidence. This may result in a less effective false-positive filter and unnecessary costs via inappropriate referrals. Therefore 'grading' practitioners (ophthalmologists or optometrists, who successfully complete the GIO/NECO course or similar) or, alternatively, grading centres may have to be considered to make 'stand-alone' algorithms more efficient.

Iso Leso's A-EYE offering will default positive AI automatically to an expert panel (ophthalmologists) for an opinion on DR disease status and referral timeframes. According to Almeida and Chin (2021), grading DR

[4] ENGAGING NEW TECHNOLOGIES IN EYE CARE

based on the Early Treatment Diabetic Retinopathy Study (ETDRS) provides clear management protocols that will prioritise the need for secondary care. Thus, when the DR grading status is added to the expert opinion, the Iso Leso programme will automatically add management protocols based on the ETDRS (Parke, 2016).

These international guidelines (or latest evidence-based updates) will include guidelines for the primary care provider, such as:

- Communication with the primary care physician: refer in X days/weeks/months or review annually and educate the patient.
- All patients with expert concern in their report will be flagged and identified in a separate report to ensure that the primary care provider has taken or communicated the appropriate action with the patient.

Future additions to A-EYE

- Soon to be added to the platform is glaucoma screening based on haemoglobin perfusion of the optic nerve head (Gonzalez de la Rosa et al, 2022) further to fundus photography, which is accessible country-wide as at least 1 200 cameras are in place within the national optometric footprint.
- Another addition planned is ocular coherence tomography (OCT)-based algorithms that, according to the NHS UK, will offer multiple (50+) retinal disease diagnoses in less than a minute with 94% accuracy (Moorfields, 2018).

EXPERT OPINION WITH AND WITHOUT AI

Iso Leso believes that in a country where specialised human resources are at a premium, the concept of co-management via a structured, verifiable platform will be an effective tool that can deliver elements of advanced care to rural communities. It can also reduce costs for urban groups while underpinning/developing primary care skills that support a more efficient and cost-effective eye care model.

To develop and introduce this concept, Iso Leso offers a variety of technology-driven reporting options. A major advantage of the programme is that it goes beyond AI screening, offering expert online opinion that filters false positives and promotes appropriate/timeous referrals and the cost-saving concept of co-management. The options are as follows:

1. Provide a portal for medical scheme members registered on the diabetes care register, to benefit from an annual DR screening via primary AI and secondary eye care provider mechanisms.
2. A-EYE screening of single chronic ocular diseases (DR, glaucoma and AMD) with a default false-positive filter by an expert panel member (10-15% false positives estimated), providing results within one minute for normal AI and 24 hours for positives.
3. Multiple disease screening with expert opinion based on patient medical history, optometric data and fundus photography – within 24 hours – level 1 report
4. As in #3 but added OCT scans for an advanced analysis and expert opinion – within 24 hours – level 2 report. Note that OCT scans are part of a bundle code and do not overlap with ophthalmology disease management codes. It is an effective separation between screening and management reimbursement, albeit that the same technologies are used.
5. Baseline pre-operative documentation of cataracts and postoperative outcomes measured.

[4] ENGAGING NEW TECHNOLOGIES IN EYE CARE

Several myopia control modalities have been proven to reduce the risk of developing high myopia and the comorbidities that accompany high myopia. Iso Leso will therefore offer baseline data and progression reporting for those young patients (currently between the ages of seven and 12) within a myopia control programme. Health funders should consider a myopia control register like the DR register.

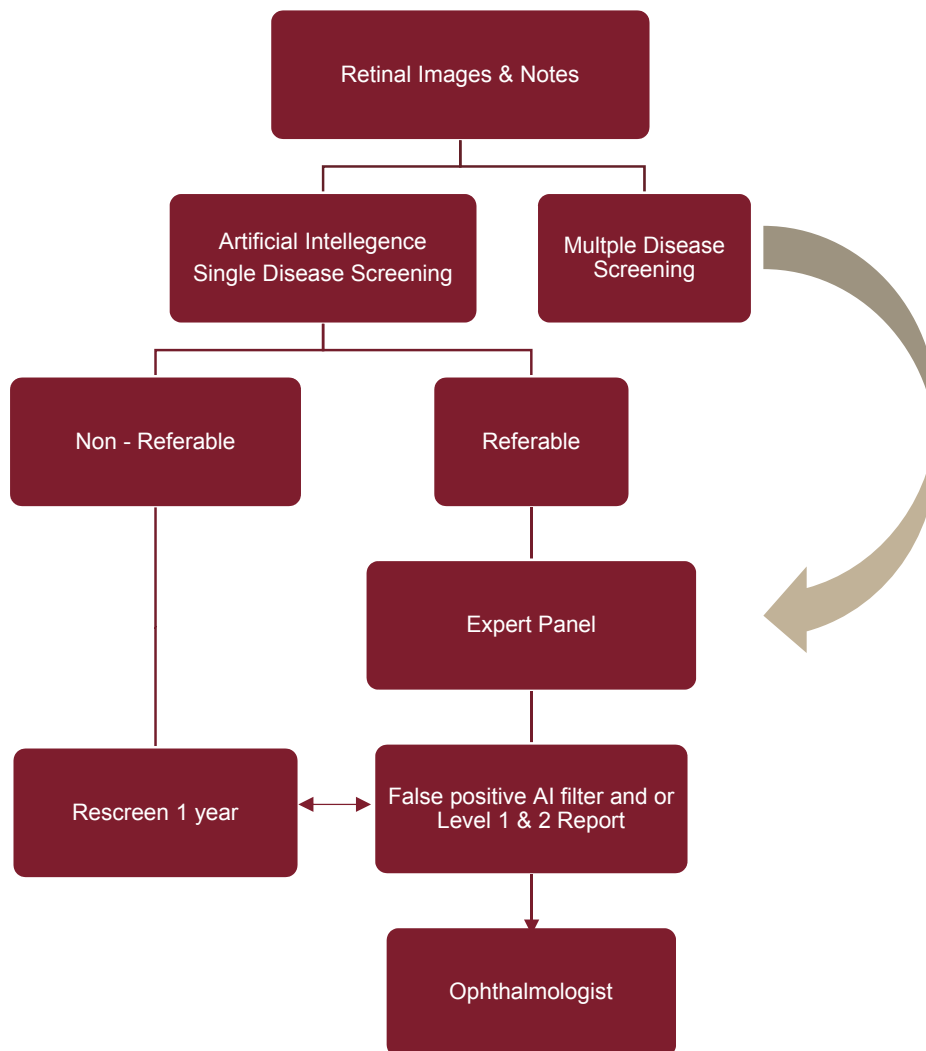
Elements in the baseline data template

Note that the same template, or relevant items within the template, can be used to measure intervention outcomes, whether medical intervention, optometric intervention or patient education programmes.

The data collected are as follows:

- Patient personal data
- Medical history
- Previous ocular surgery, injury or disease diagnosis
- Current symptoms
- Uncorrected acuity
- Refractive data
- Intraocular pressure
- Best corrected acuity
- Pin hole acuity
- Contrast sensitivity function – optional
- Glare awareness – optional
- Pupil responses
- Anterior segment photos (retro illuminated cataract images) – most likely will need dilation
- Posterior segment fundus photos – 1, 2 or 3 fields – may need dilation. Where OCT is available, the following will be added:
 - ▶ Corneal thickness measurement
 - ▶ Anterior chamber filtration angle imaging/measurement
 - ▶ Retinal ganglion cell layer thickness
 - ▶ Retinal nerve fibre layer thickness
 - ▶ Central retinal thickness
 - ▶ Detailed macular imaging to identify AMD or clinically significant oedema that is not identifiable via traditional visual inspection.
 - ▶ Any additional scan or visual fields where the primary care provider had concerns or that the secondary care provider requested as part of screening and/or co-management.

PLATFORM FLOWCHART



Health funder benefits

- Enhancing access to care.
- Cost efficiency/savings (direct/indirect) and downstream costs.
- Health data sharing.
- Ongoing/progressive improvements in quality and health outcomes.

Responsibilities of the primary care provider

- Added administration burden.
- Communication with primary care physician as well as secondary care provider when required.
- Feedback reporting of flagged patients. Closing the 'loop' where referral is indicated.
- Patient education.
- Adopting co-management responsibilities and standards of care.

Myopia control perspectives

- Multiple studies have now confirmed that various myopia control modalities are effective in reducing the magnitude and therefore comorbidity risks (Table 3).
- It is our view that this will become the standard of care when young myopic patients show signs of accelerated myopia progression.
- There will be cost implications that will need to be accommodated in follow-up visits during the treatment period; myopia control may require peripheral defocus spectacle lenses or contact lenses or low-concentration atropine drops or orthokeratology (reshaping contact lenses).
- Designing benefits in this new modality will require accurate data that the platform can share.

Software development opportunities

- Integration of the platform into practice management and reimbursement packages.
- Programme-to-programme interface development to enable data sharing with funders and health authorities where appropriate.

Table 1. Risk of progression to proliferative DR (Pulido, 2002).

GRADE OF NON-PROLIFERATIVE DR	DEVELOPMENT OF PROLIFERATIVE DR	DEVELOPMENT OF HIGH-RISK PROLIFERATIVE DR
Mild	14% in 3 years	15% in 50 years
Moderate	12-26% in 1 year	3-9% in 1 year
Severe	50% in 1 year	15% in 1 year
Very severe	75% in 1 year	45% in 1 year
Early proliferative DR		50% in 1 year

Table 2. Progression to DR time frames (Klein et al, 2008)

AFTER 20 YEARS DURATION OF DIABETES:

Type 1 DM: nearly all will have some retinopathy.

Type 2 DM: > 60% will have some retinopathy.

Based on the Wisconsin Epidemiological Study of Diabetic Retinopathy (WESDR).

Table 3. Disease risk in myopia (Ritchey, 2019)

Risk of glaucoma	-2.00 – 2X higher -6.00 – 3X higher
Risk of Posterior Subcapsular Cataract	-2.00 – 2X higher -6.00 – 3X higher -8.00 – 6X higher
Risk of retinal detachment	-2.00 – 3X higher -6.00 – 9X higher -8.00 – 22X higher
Risk of myopic maculopathy	-2.00 – 2X higher -6.00 – 41X higher -8.00 – 127X higher

[4] ENGAGING NEW TECHNOLOGIES IN EYE CARE

The Holden Vision Institute studies the prevalence of myopia worldwide and states that it will increase from 22.9% in 2020 to 49.8% in 2050 if there is no myopia control intervention (Holden, 2022).

CONCLUSION

- Advanced non-invasive technology is an enabling tool for healthcare funders and the eye care professions to detect and monitor chronic ocular disease effectively and economically.
- Managing these technologies creates an opportunity to save costs directly, indirectly and downstream.
- Furthermore, a structured approach to the implementation of AI and its integration into the 'telemedicine' field of eye care will improve access to care and sharing of health data and enhance disease management protocols and health outcomes.

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FOSTERING A DIGITALLY ENABLED healthcare system through health information exchange

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EXECUTIVE SUMMARY

The fragmented nature of South Africa's health system negatively impacts both the cost and quality of healthcare, and impedes the introduction of universal healthcare for the entire South African population.

This has raised concerns among leaders and policymakers alike, including the Competition Commission's Health Market Inquiry (HMI) panel whose recommendations include the need for innovations that increase efficiencies in healthcare delivery and funding; greater transparency on health outcomes; less fragmentation; and a move towards care coordination (CCSA, 2019). Aligned to these recommendations, the South African government also recognises the importance of digitisation in improving access to quality healthcare in its National Digital Health Strategy (NDoH, 2019).

The CareConnect Health Information Exchange (HIE) has been developed over the past two years to respond to the above imperatives. Founded jointly by six South African healthcare organisations, the HIE enables the sharing of rich patient health information, thereby enabling fragmented systems to exchange and use the information to support healthcare professionals. From August 2021 to December 2022, 4.7 million consented patient records had already been added to this HIE and 94.5 million 'transactions', i.e. an exchange of information within the HIE, including updates of patient demographic and clinical data, had taken place.

In this paper, we firstly present the background to HIEs and the value they provide to the various ecosystems they operate in. Secondly, we share key lessons learned in developing the CareConnect HIE, specifically in collaborating with six large healthcare organisations. Thirdly, use cases are shared on the value of HIE to both the private and public health sectors. Lastly, we provide insight into the HIE roadmap from both a clinical and technology perspective.

INTRODUCTION

South Africa's healthcare system is marked by a high degree of fragmentation caused by a variety of factors, including geographic disparities, income inequality, a two-tier health system, a siloed approach to patient care and a lack of care coordination between different stakeholders. This fragmentation creates challenges for both patients and providers and affects both the costs and quality of healthcare delivery.

In its final report (CCSA, 2019), the Competition Commission's HMI panel made recommendations related to factors that affected efficiencies and competition within the sector, several of which could be resolved by Health Information Exchange (HIE). These include:

- Moving away from a fee-for-service model of reimbursement towards alternative reimbursement models to contain expenditure and encourage value-based contracting. Data would be needed from the HIE to assist in measuring the clinical effectiveness of these new models.
- A single data repository, such as the HIE, to collect timely and reliable information for both the private and public health sectors.
- The need for a platform for providers, patients and all other stakeholders in the provision of healthcare to generate patient-centred and scientifically robust and standardised information on health outcomes.
- Increased multidisciplinary team-based care, which would directly benefit from providing and supplying data to the HIE to support coordination of care.
- Investing in innovative forms of care and reaffirming/strengthening the care co-ordinator role of GPs. The HIE allows GPs a complete clinical view of their patient's journey.

The case for a HIE

Because it is seen as such an important mechanism for improving the efficiency and effectiveness of healthcare delivery (Payne et al, 2019; HealthIT.gov, 2023), HIEs have become a priority on many health policy agendas for governments around the world. They are already common in the most advanced health systems globally, such as China, England, India, Scotland, Switzerland and the United States (Payne et al, 2019).

Research has shown that the electronic exchange of clinical information is vital to improving healthcare quality, safety and patient outcomes in the following manners:

- Improved quality of care: Improved healthcare quality and health outcomes by reducing medication and medical errors (Payne et al, 2019; HealthIT.gov, 2023).
- Improving efficiency: Improving efficiencies by reducing unnecessary tests and ensuring that those involved in the patient's care have access to the same information (HealthIT.gov, 2023).
- Streamlining administration: Reducing administrative costs by reducing paperwork and making many administrative tasks simpler and more efficient (HealthIT.gov, 2023).
- Engaging patients: Enabling patients to be involved in their own healthcare, reducing paperwork and time spent briefing health service providers on their medical histories (HealthIT.gov, 2023).
- Supporting community and public health: Coordination with and supporting public health officials to improve community and public health (HealthIT.gov, 2023).

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To address fragmentation and other obstacles plaguing the system, which later became the focus of the HMI, in 2016 six South African private health sector organisations, Netcare, Momentum Health, Mediclinic, Medscheme, Life Healthcare and Discovery Health, came together to explore the possibility of creating a coordinated health information management system, which could ultimately become an independent health utility for the entire health sector.

After a successful feasibility study was conducted, a Memorandum of Understanding was signed between the six participants and the CareConnect HIE, a non-profit organisation, was formed. Funding for the development of the CareConnect HIE was provided by the six founding members. During February 2019, a pilot study was conducted with two of the founding members to test and validate the integration, functionality, privacy and security of data required for the initial use cases. The exercise achieved the agreed critical success factors necessary to operate an HIE and clearly demonstrated the potential value of sharing data through an HIE. It also brought to the fore the mutual trust required to ensure that the data being shared are utilised for the correct reasons, i.e. improving health quality, outcomes and efficiencies. This gave rise to the drafting of a Data Use and Reciprocal Support Agreement (DURSA), which establishes the rules of engagement and obligations to which all CareConnect HIE participants agree and sign as a condition of joining the HIE community. It specifies the principles around sharing of data and the permitted purposes for sharing data, i.e. in the interest of improved health quality and outcomes for patients. For example, data security is a key element of the DURSA and each participant needs to ensure sufficient mechanisms to keep data safe.

The data exchanged via the CareConnect HIE environment consists of both demographic and clinical data. In adherence to the POPIA, only consented data are shared and exchanged. The obtaining and managing of consent rests with the participants, who remain the responsible parties and should have the necessary consent management processes and systems. In the case of health facilities, explicit consent is obtained upon admission to the facility. In the case of medical schemes, consent is obtained through their usual member management channels.

KEY ELEMENTS OF THE CARECONNECT HIE

Initially built around five use cases, the CareConnect HIE facilitates the consented sharing of a wide range of information, such as patient medical records, test results, previous hospitalisations and medication lists. The five initial use cases are as follows:

- **Elective admission**, which provides access to a patient's health insurance details and related authorisations required during pre-admission for an elective procedure.
- **Emergency visits** (conscious patient), which provides access to a patient's demographic and clinical information such as previous hospital visits, historic procedures, historic and active diagnosis, chronic and other current medications.
- **Emergency visits** (unconscious patient), which provides access to a patient's demographic (including contact details) and clinical information as with the conscious patient.
- **Personal detail updates** allow patients to validate and update personal and medical details during a pre-admission visit or check-up.
- **Revocation of consent.**

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Using state-of-art technology whereby participants can accurately and securely exchange data using the CareConnect HIE is one of the key building blocks required for the successful implementation of the HIE. As a result, the HIE provides the following value for all participants:

- **A unified care record (UCR):** A single UCR of a patient that increases in value as more data is added. This contains both up-to-date demographic and clinical information, including hospital encounters, chronic conditions, medication and information relating to diagnostic testing. This care record assists in facilitating coordinated patient care by providing clinicians with a unified view of patient data.
- **Master patient index (MPI):** Adapted to the South African context, the MPI enables seamless patient identity matching across the total patient population, which provides access to up-to-date patient demographic data.
- **Data quality management:** The CareConnect community obtains value by addressing data quality issues within their own data. Where data can't be matched, or where anomalies are discovered (as in the case of duplicate scheme membership), streamlined processes defined between CareConnect and its members are in place to handle manual worklist items. From August 2021 to November 2022, 45 681 (approximately 1%) of the total patient records have required manual intervention. This process aids participants in addressing data quality issues within their own data sources.
- **HL7 (Health Level 7) and FHIR (Fast Healthcare Interoperability Resources 1):** A set of international standards used to transfer and share data between various healthcare systems regardless of how it is stored in those systems. Both these standards aim to standardise the messages that are passed between systems, which is what drives the interoperability because everyone is speaking the same language. CareConnect HIE supports these industry-wide integration standards. This provides us with a standard common target data format, transforming information into a usable form. This common format ensures data integrity, accuracy and consistency while clarifying ambiguous meanings and minimising redundant data. It also allows for consistently applying specific business rules. Having these data standardised makes it simpler to govern with a data catalogue that can track things like who owns the data, where it came from, who is allowed to use it and who has used it.
- **Data security:** The HIE is built on local Amazon Web Services self-contained environments. Security and encryption occur at access network, communications, server, operating system and software levels. User-based roles and rights provide an additional layer of security.

Privacy and security of data form the cornerstone of HIE. The CareConnect HIE conforms to both local and international data privacy regulations to ensure that sensitive health information remains protected at all times and will only be accessible to healthcare providers when medically necessary and only with the patient's consent. User-based access permissions are automatically regulated by the HIE, further safeguarding sensitive patient information.

HIE USE CASES

The increase in patient-consented information on the HIE from 2021 to date, combined with a growing appreciation by stakeholders within the industry, is driving participation in the initiative.

While still in its infancy, participating organisations, including clinicians, in the HIE are already finding value in its use for care coordination, through real-time access to patient records and the single UCR. The HIE is also being utilised by hospital facilities to complement their admission process and reduce paper-based processes through the use of CareConnect's Clinical Viewer and system-to-system interface. Additionally,

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hospital groups and administrators have found significant value in the CareConnect MPI for identifying data quality issues and some have also adopted the CareConnect integration standard and methodology for implementing internal integrations and projects.

The next phase of HIE developments, now underway, includes the addition of radiology information. Having a view of radiology reports and images will provide a more comprehensive view of the patient journey and drive further adoption of the HIE and of sharing data. The integration of pathology data is currently being sought, as the more data there are on the HIE the more value it will provide.

Simultaneously, additional use cases are in the process of being developed to provide healthcare providers, funders and future participants of the HIE with a 'richer' set of data in support of their own objectives. New use cases include:

- Discharge summaries, which provide access to a summary of a patient's condition, care received, treatment plans and hospital admissions;
- Adverse reactions, which provide access to any testing and diagnoses, for consistency and accuracy of patient's allergies;
- Obstetrics care, which provides access to a deeper data set around pre- and post-antenatal care, including the patient's labour and delivery information received from GPs and specialists.

The implementation of these use cases would also be of value to the public sector, and National Health Insurance (NHI). South Africa's NHI (Republic of South Africa, 2019) is a proposed system that aims to provide universal healthcare coverage for all citizens. One of the key components of the NHI is the establishment of a comprehensive electronic health record (EHR) system, which would enable the exchange of health information among different healthcare providers. This would allow healthcare providers to access a patient's complete medical history, even if the patient has received care from multiple providers or at different locations.

HIE, which includes a rich EHR in the form of its UCR for each patient, has the potential to significantly improve the efficiency and effectiveness of the healthcare system, as well as the quality of care that patients receive. Overall, the use of HIE as part of South Africa's NHI would help to achieve the goal of universal healthcare coverage by improving the quality, efficiency and effectiveness of the healthcare system.

CONCLUSION

Health data sharing, now more than ever, is a crucial aspect of effective healthcare and benefits everyone: individuals, healthcare systems and global populations. Sharing data can improve patient care by making it more efficient and coordinated, allowing patients to take a more active role in managing their own healthcare journey. Healthcare providers can also use data-sharing to design better diagnostic and care pathways and use resources more efficiently. The potential for medical research is also improved, as data-sharing allows for faster development of new treatments. EHRs, in particular, are useful for healthcare professionals as they allow access to all prescribed medicine, laboratory test reports and a patient's medical history on a single screen, enabling more accurate diagnoses and better care (Data Saves Lives, 2022).

The value of any HIE lies in the quantity and quality of data available to be exchanged. The more data that are added, the more value the HIE will provide to its participants. The CareConnect HIE is still in its infancy (relatively speaking) in terms of the use cases it has developed, so more participants are required to come on board, so as to develop new use cases that further contribute to, among others, quality of care; outcomes; coordination of care; performance-based reimbursements and standardisation.

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Critical to the CareConnect HIE is participation by clinicians and their societies, as the HIE will enable analysis, reporting and quality improvement projects to be conducted on de-identified data. Projects relating to perioperative outcomes improvement, obstetrics monitoring, allergies and others are being developed.

Given South Africa's dual health system and the federated approach in terms of autonomous provincial health departments, interoperability and HIE are key to achieving a more cohesive system. To this end, the CareConnect HIE is working with government as a potential capability to address data exchange and standardisation between the various health systems in the interests of improved patient experience, better patient care and a more cohesive system.

HIE platforms like CareConnect, along with their capabilities for transmitting real-time clinical information between participants and their bundled products and services, have the potential to accelerate and scale access to healthcare and spark transformative innovation that meets needs in South Africa's health system. The CareConnect HIE is already having a positive impact on the South African private healthcare system and has the potential to become a catalyst for innovation in both the public and private healthcare systems in South Africa.

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A CLAIMS MANAGEMENT FORUM and its role in GEMS' financial turnaround and sustainability

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EXECUTIVE SUMMARY

BACKGROUND: The Government Employees Medical Scheme (GEMS) was established 18 years ago. In 2016, the scheme experienced its worst outcomes, recording its lowest statutory reserve ratio and an unprecedented high waste of resources. Members were seen to be joining the scheme when the need arose and cancelling membership after receiving the desired healthcare. This, coupled with high waste, led to the scheme's reserves reaching a low level of 6.6%.

As a response to the claims experience, the scheme implemented a Claims Management Forum (CMF) in 2016, a multi-stakeholder forum to monitor healthcare benefits utilisation, fraud waste and abuse (FWA), anti-selection and implementation of mitigations to improve the scheme's performance.

METHOD: This is a retrospective case study, which describes the changes in the scheme's reserve ratio, before and after implementation of the CMF interventions. Claims and membership data from GEMS were used to evaluate changes in the reserve ratio from 2016 to 2021.

RESULTS: The biggest driver of unsustainable coverage was found to be adverse selection. Interventions introduced included underwriting to reduce this. Underwriting was successfully introduced but limited to the application of a three-month (general) and/or a 12-month condition-specific waiting period, limited to principal members and beneficiaries who cancel membership and later wish to rejoin in the absence of termination of employment. The scheme showed a significant improvement in its reserve ratio from 6.5% in 2016 to 46.1% by December 2021.

CONCLUSION: The CMF interventions, together with a focused approach, have improved the financial performance and sustainability of the scheme.

INTRODUCTION

Moral hazard, anti-selection, supplier-induced demand (SID) and fraud, waste and abuse (FWA) threaten the efficiency and sustainability of healthcare insurance. Moral hazard refers to the consumption of additional healthcare when a person becomes insured with medical insurance benefits. It represents a change in the behaviour of both the person insured and the healthcare provider. This creates the potential to over-consume on the customer's side, known as the demand side, and oversupply healthcare on the provider's side, creating demand in supply of healthcare, i.e. SID (Jafari and Gorji, 2022; Nguyen, 2014; Bazzyar et al, 2012). Both moral hazard and SID are major causes of market failure (Bazzyar et al, 2012; Mirian et al, 2020). A study conducted by Powell and Goldman in 2016 for the National Bureau of Economic Research estimated that 53% of additional health expenditure was due to moral hazard alone (Powell and Goldman, 2016).

SID by health providers can be attributed to lack of knowledge on the consumer's part and the advice given by the treating doctor. The doctor in this position has the ability to influence the type of management given to the consumer based on his medical assessment and diagnosis. There makes it possible to overtreat and increase the number of consultations actually needed. There are also health system-related factors associated with SID, including fee-for-service models, a high density of providers within a geographical location and the introduction of innovative technology (Sekimoto and li, 2015).

In South Africa, the Health Market Inquiry (HMI) was conducted by the Competition Commission to protect access to healthcare services. The Inquiry found that the private sector had high healthcare costs and medical scheme cover (Competition Commission, 2019). Rising scheme premiums were a result of an increase in utilisation caused by an increase in the use of private hospitals. The costs of overutilisation demonstrated no improvement in the health outcomes of patients.

The inquiry recommended the implementation of a supply-side regulator of health to regulate the supply of healthcare services (Competition Commission, 2019; Erasmus and Kean, 2016).

The consequences of moral hazard and SID are gross inefficiency, an increase in price and an overall reduction in the benefits of risk pooling (Mirian et al, 2020).

Interventions at funder level that have been used to reduce moral hazard include managed care interventions, preauthorisation, evidence-based protocols, the introduction of co-payments and medical savings accounts. These interventions are associated with a decrease in the utilisation of services, a change in the behaviour of healthcare consumers, such as deciding whether to visit a healthcare provider, cost-sharing, rationing, incentive programmes and uniform pricing. These interventions have resulted in substantial increases in schemes' financial surpluses (Koochi Rostamkhalae et al, 2022; Mirian et al, 2020; Bazzyar et al, 2012; Jafari and Gorji, 2022).

FWA

The result of no interventions to reduce moral hazard and SID is excess waste and abuse, leading to fraudulent behaviour. In the USA, at least 30% of healthcare costs can be attributed to waste (Shrank et al, 2019).

Waste domains identified by the Institute of Medicine and Berwick and Hackbarth (Shrank et al, 2019) include failure of care delivery, failure of care coordination, overtreatment or under-servicing, lack of pricing regulation, and administrative complexity. According to the Council for Medical Schemes' (CMS) Fraud, Waste and Abuse Charter fraud is defined as intentional deception, misrepresentation, false statements or false representation of material facts with the knowledge that the deception could result in unauthorised benefit or payment for which no entitlement would otherwise exist. These acts may be committed either for the

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person's own benefit or for the benefit of some other party. Abuse refers to practices that are inconsistent with sound fiscal, business or medical practices, and result in unnecessary cost to a medical scheme, or in reimbursement for services that are not medically necessary. Waste refers to the extra costs incurred when healthcare services are overused, or when bills for services are prepared incorrectly. The prevalence of fraud within healthcare in South Africa in 2018 was estimated at 5-15% of total healthcare expenditure in respect of fraudulent claims (CMS, 2018). The international norm is generally 10% of the country's total spend (Bate-man, 2015; Shrank et al, 2019; CMS, 2018).

In general, waste and abuse in health insurance are curbed through managed healthcare interventions. Managed care refers to applications of clinical tools and health financing principles to ensure effective, cost-effective and affordable healthcare (Iglehart, 1992; South African Government, 1998).

ANTI-SELECTION

Medical schemes continually try to curb costs and introduce measures to reduce expenditure as the need for access to healthcare services continues to grow. Since the South African private health sector predominantly involves voluntary participation, there is a high risk of anti-selection. Anti-selection refers to medical consumers purchasing insurance or upgrading health plans when a health need arises and terminating the cover once the need is met. The Medical Schemes Act (MSA) 131 of 1998 allows application of general and specific waiting periods as well as late-joiner penalties to minimise the impact of anti-selection. To enable coverage for previously uncovered lives, GEMS' rules allowed members to join the scheme without any of the mitigation measures prescribed in the MSA.

FINANCIAL SUSTAINABILITY

GEMS was established in January 2005. The scheme was founded to ensure that government employees would have equitable and affordable access to comprehensive healthcare benefits. GEMS has since become the largest closed medical scheme in South Africa. As of April 2023, GEMS provides cover to over 805 000 principal members and over 2.14 million beneficiaries. In 2015 the scheme faced a difficult financial trajectory as its reserve ratio was decreasing at an alarming rate. In 2014, it ended at 10.0%. In the course of the year, it had dipped to 7.4%. In 2015, it dipped to 7.1%.

In July 2016 the scheme established the CMF under the leadership of the principal officer. The forum comprised a multidisciplinary team of experts. Participants included clinicians, actuaries and other healthcare and financial experts with experience in the healthcare sector. Participants were sourced both from within GEMS and within the GEMS Service Provider Network.

INTERVENTIONS OF THE CMF

The most impactful initiatives championed by the CMF included:

- Selective underwriting: applied to members who previously joined the scheme and resigned, then rejoined the scheme at a later date;
- Tackling FWA;
- Benefit design: Establishing the Emerald Value Option (EVO), which is underpinned by general practitioner (GP) nomination, care coordination and network hospital use, and expanding coverage in entry-level plans to include private hospitalisation; and
- Challenging SID by reducing hospital admission rates through managed care intervention and in-hospital case managers.

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This article describes the interventions implemented within GEMS that improved its financial trajectory.

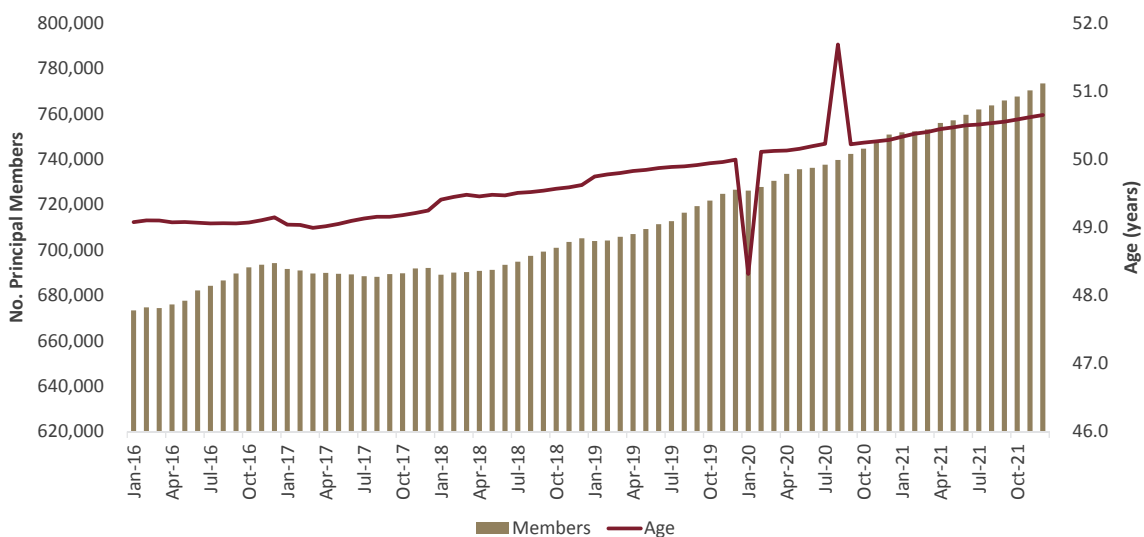
METHODOLOGY

This article is a retrospective case study that describes the changes in the scheme's reserve ratio before and after the implementation of the CMF interventions described above. Claims and membership data from 2016 to 2021 were used. Descriptive analysis was conducted to present the findings of the study.

RESULTS

GEMS membership increased from 673 000 principal members at the start of 2016 to 773 000 at the end of 2022. This is a nearly 20% growth. Over the same period the scheme's average age remained relatively steady, reflecting that the scheme has managed to continue to attract reasonably young lives, with the average age changing from 49.1 years in 2016 to 50.7 years in 2021 (Figure 1).

Figure 1. GEMS membership growth



One of the CMF interventions was the introduction of the EVO, underpinned by GP nomination, care-coordination and network hospitals use. Membership of this option grew rapidly, from 19 000 members in 2017 at introduction to over 100 000 at the end of 2021; this represents a 425% growth in five years. Similarly, expanding coverage of entry-level plans to include private hospitalisation led to the rebranding of the Sapphire to Tanzanite One option (T1) in 2020. The T1 option grew from 55 000 members in 2020 to 96 000 members in 2021, i.e. a 75% growth. The introduction of EVO and revamped T1 option helped the scheme to retain and attract younger members – note the dip in average age from 2017 and then again in 2020. In 2016, GEMS' reserves declined dramatically. The reserve ratio ended the year at 6.5% and dipped as low as 4.0%. Thereafter it steadily increased. By March 2020 (prior to the start of the COVID-19 pandemic), it had reached 28.4%. By December 2021, the reserve ratio had reached 46.1% (Figure 2).

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Figure 2. GEMS reserve ratio (January 2014 to March 2020)

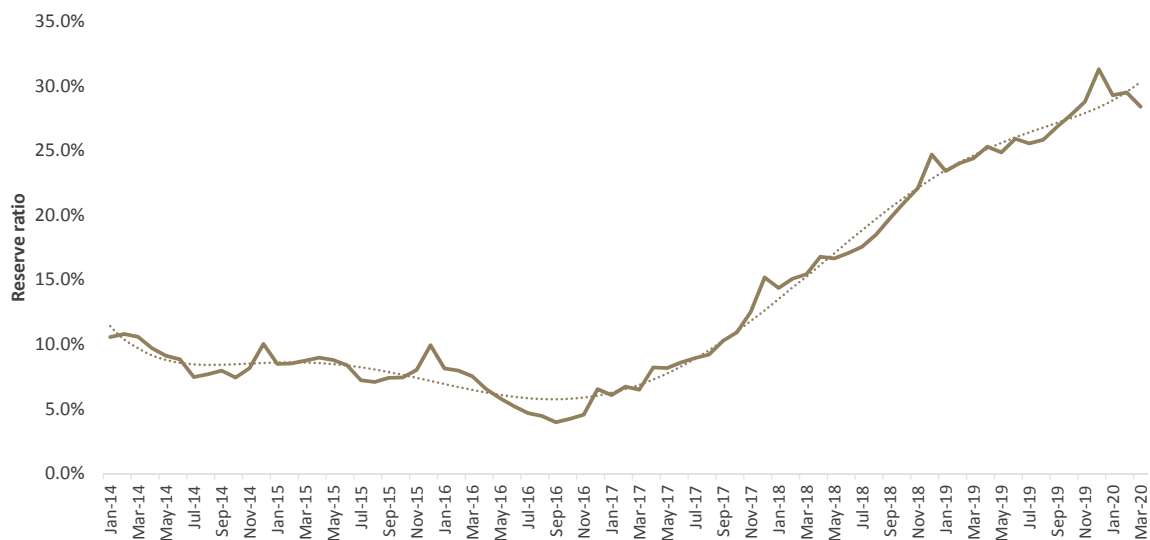
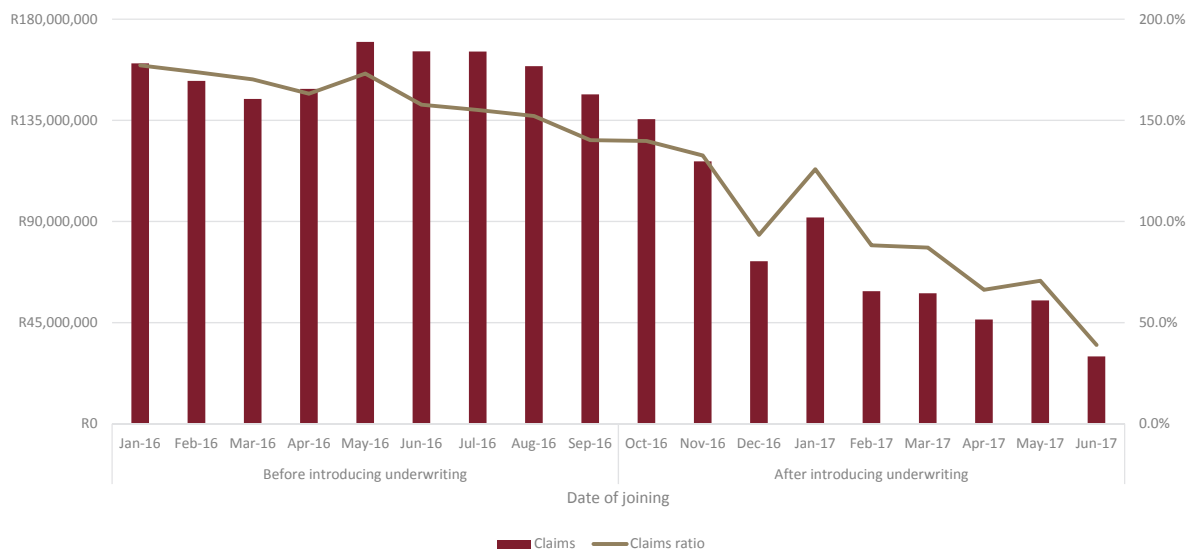


Figure 3 below shows claims for new beneficiaries before and after the introduction of underwriting. More specifically, it shows the experience of new beneficiaries within the first nine months of their membership.

Figure 3. Claims ratio for new joiners before and after the introduction of underwriting



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In the nine months prior to the introduction of underwriting (January 2016 to September 2016), new joiners contributed R873 million and generated R1.41 billion in expenditure in their first three months of membership. This translates to a deficit of R539 million or a claims ratio (expenditure as a proportion of contributions) of 161.8%. In the nine months after the introduction of underwriting (October 2016 to June 2017), new joiners contributed R693 million and generated R664 million in expenditure. This translates to a surplus of R29 million; the claims ratio was 95.9%. By June 2017, with underwriting in full effect, the claims ratio had plummeted to 39.0%.

DISCUSSION

The CMF interventions showed significant increases in the scheme's reserve ratio by March 2020 (prior to the start of the COVID-19 pandemic), when it reached 28.4%. By December 2021, it had reached 46.1%. It is, however, acknowledged that this was in part due to the reduction in utilisation caused by the pandemic (Shapiro et al, 2022).

In South Africa, the medical scheme regulator closely monitors schemes when reserves decline rapidly or fall below 25%. In 2021, two schemes had ratios below 25% and one went insolvent. Among the causes of reserve ratio decline is decline in membership numbers, aging beneficiaries, FWA and excessive claims (CMS, 2022; CMS, 2022a, 2022b). Without successful interventions the scheme could have been at risk of imminent insolvency, with a potential negative impact on vulnerable government employees.

The Ghana National Health Insurance Financing Scheme had a similar experience. Its sustainability was threatened by overservicing, lack of formularies, adverse selection, increasing utilisation rates and costly care associated with inappropriate utilisation of hospital services and lack of funding for preventative services (Wang et al, 2017).

Benefit design has been shown to improve sustainability of health insurance while increasing effectiveness and efficiency in health insurance coverage (Davis et al, 2013; Chernew et al, 2016). These interventions were also deployed by Medicare to transform its offering over the last decade (Aaron and Reischauer, 2015). During the study period, GEMS option plans have steadily grown through internal member movement and new enrollees. Members are incentivised to use PHC, network providers and formularies, by passing back efficiency savings in the form of a 16% contribution reduction. In 2022, EVO members' satisfaction levels were at 92% vs an overall scheme satisfaction of 89% (GEMS Member Satisfaction Survey, 2022).

The network providers were similarly more satisfied with GEMS than non-network providers, 91% vs 79% (GEMS Provider Satisfaction Survey, 2022). This suggests that benefit design may have improved financial sustainability as well as member and provider satisfaction levels.

Managed care, pre-authorisation and strict implementation of evidence-based protocols were used to address SID and moral hazard. Attention was given to hospital admissions as an opportunity to standardise care and achieve cost-savings. It was also determined that there were significant variations in the cost of hospital admissions at different hospitals. Cost variations would typically stem from variations in lengths of stay and levels of care. Case managers were appointed by the scheme to focus on less cost-efficient hospitals. In-hospital case managers were tasked with monitoring variations in the length of stay and level of care. The presence of case managers had a positive impact on cost efficiencies as well as the number of avoidable admissions.

Prior to October 2016, GEMS did not apply any underwriting. Persons could join the scheme and immediately have full access to benefits. This led to extensive anti-selection. To limit the potential for such practices, a three-month general waiting period and a 12-month condition-specific waiting period were implemented.

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The introduction of underwriting resulted in a significant decline in the number of claims for the scheme. The scheme continued to grow, albeit at a marginally reduced rate following the introduction of underwriting. Among the benefits of underwriting is that those lives who would have selected against the scheme never joined. Similar findings of anti-selective behaviour were found within the Ghanaian scheme in 2016. Most joiners had high utilisation rates and claims were markedly high, which created future financial sustainability concerns (Duku et al, 2016). By contrast, a study conducted in the USA in 2016 showed that utilisation of healthcare stayed constant within all categories of care and that new members have lower health risks than members within the scheme (Fertig et al, 2016).

This study has shown that with concerted and concentrated effort, the interventions adopted by GEMS' CMF can turn around a scheme's financial position.

CONCLUSION AND RECOMMENDATIONS

This study demonstrated that simultaneous application of interventions such as underwriting, strict application of managed care protocols and tackling FWA, SID and moral hazard can improve a scheme's financial reserves and sustainability. Rehabilitation of schemes' risk of not meeting statutory reserves could consider these mechanisms.

Limitations of the study: This is a retrospective case study, and multiple interventions were implemented simultaneously to turn around the scheme's financial sustainability. We are unable to determine and estimate the impact of each intervention.

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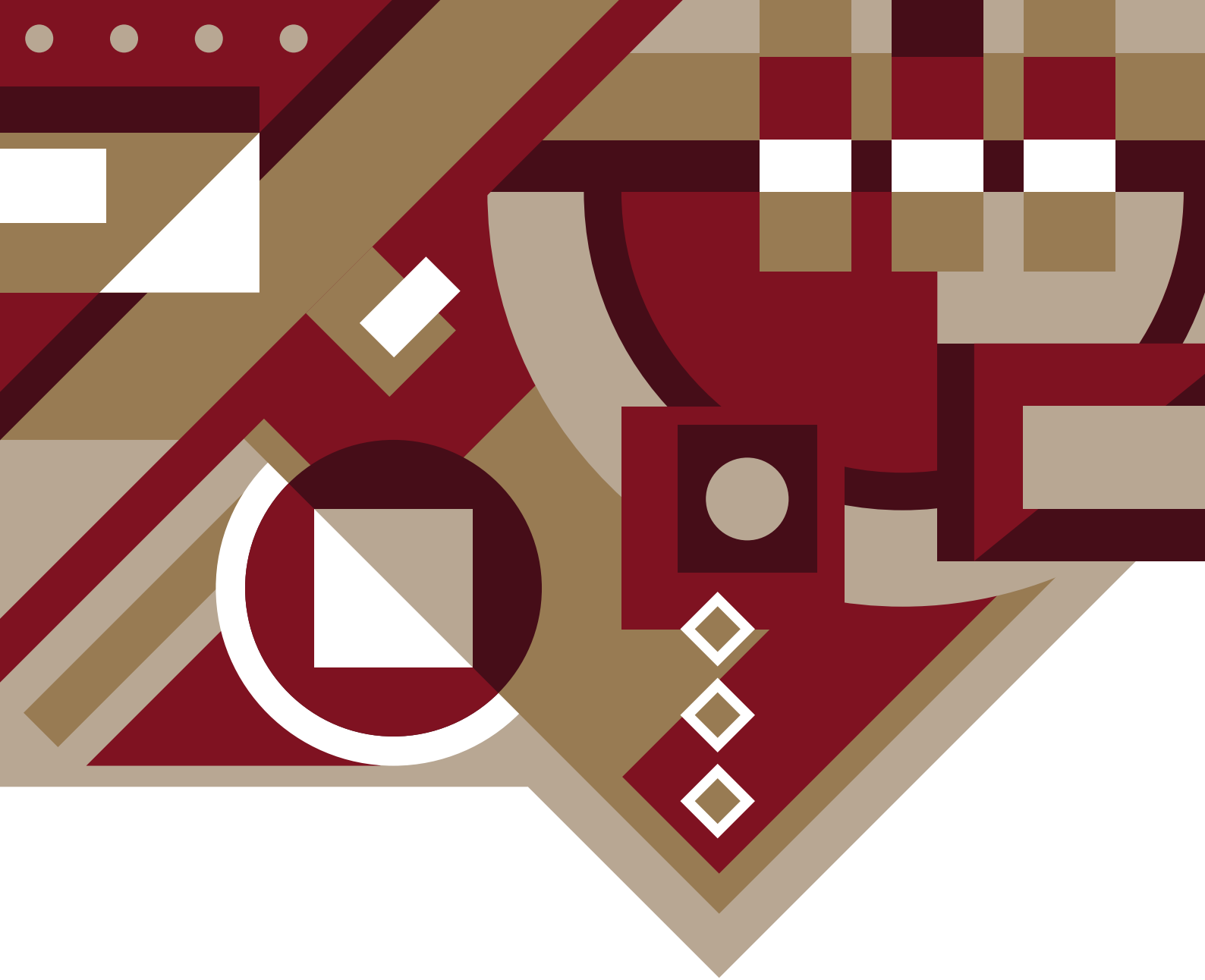
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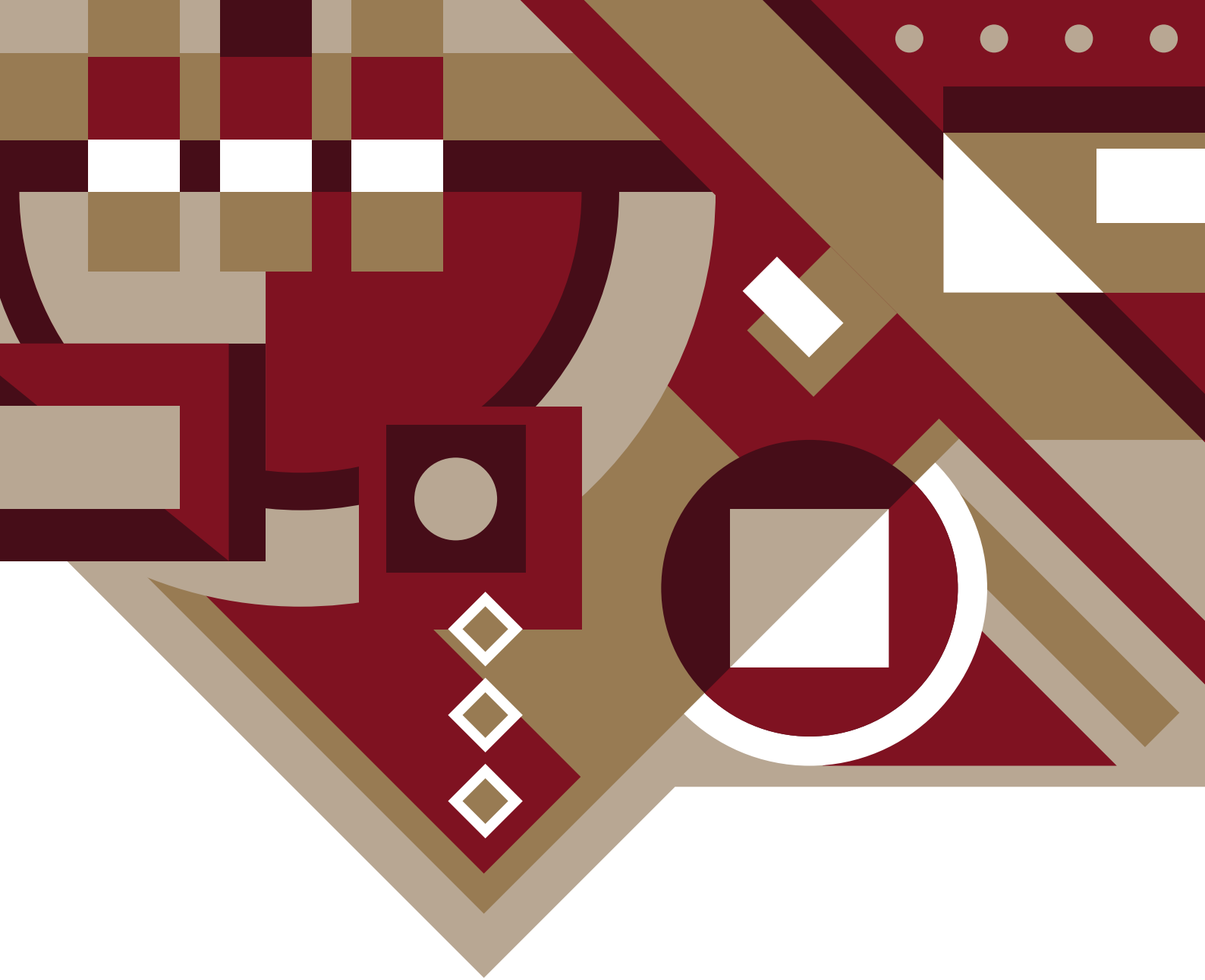
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