



ANALYSIS OF REMUNERATION FOR MEDICAL PRACTITIONERS IN THE PUBLIC SECTOR IN SOUTH AFRICA: 2012 - 2022

SUMMARY OF THE FINAL REPORT

*This Curis Solutions study was commissioned by the
South African Medical Association*

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BACKGROUND

As the South African macroeconomic outlook has come under severe pressure, National Treasury has responded by progressive and at times aggressive fiscal consolidation. Over the past several years, government has taken steps to contain consolidated compensation costs, which account for 31 percent of consolidated expenditure in 2022/2023 – down from 34 percent in 2019/2020. Government believes that managing the wage bill is critical for ensuring sustainable public finances.

Over the last decade, negotiated annual cost-of-living adjustments have exceeded consumer price index (CPI) inflation by an annual average of 2 percent. In some financial years, this resulted from wage agreements set well above the prevailing inflation rate. This was particularly noticeable during 2007/08 to 2009/10 when occupation-specific dispensation was introduced and implemented for public-service employees in selected sectors.

HUMAN RESOURCES FOR HEALTH STRATEGY FOR SOUTH AFRICA

The overall goal of the strategy on Human Resources for Health (HRH) is to improve health, social and economic development outcomes by ensuring universal availability, accessibility, acceptability, coverage, and quality of the health workforce through adequate investments, to strengthen health systems and the implementation of effective policies at national, regional and global levels.

The four main objectives of the global strategy on HRH are to:

1. **optimize performance, quality and impact of the health workforce** through evidence-informed policies on human resources for health, contributing to healthy lives and well-being, effective universal health coverage, resilience and strengthened health systems at all levels.
2. **align investment in human resources for health with the current and future needs** of the population and of health systems, taking account of labour market dynamics and education policies; to address shortages and improve distribution of health workers, so as to enable maximum improvements in health outcomes, social welfare, employment creation and economic growth.
3. **build the capacity of institutions** at sub-national and national, levels for effective public policy stewardship, leadership and governance of actions on human resources for health; and to
4. **strengthen data on human resources for health**, for monitoring and ensuring accountability for the implementation of national and regional strategies, and the National Strategy.

In March 2020, the National Department of Health (NDoH) published the latest and current HRH Strategy for the country titled “2030 Human Resources for Health Strategy: Investing in the Health Workforce for Universal Health Coverage”, however, it is interesting to note that the establishment of a health workforce planning unit and development of planning capacity in the NDoH envisaged in the previous strategic plans has not yet been realised. There is also no integrated, accurate and timely HRH database and information system to use for health workforce planning.

It is noteworthy that the HRH Strategy for South Africa highlights expenditure compensation on employees as a proportion of public sector total health expenditure (THE). This figure is cited as circa 63% of total provincial health budgets. In this document, it is stated that doctors take up ~31% of the salary bill while they make up 8,6% of the total workforce.

The Ministerial Task Force (MTF), makes no mention or does not recognise as its goals nor objectives, *strengthening remuneration and reward practices to ensure equity, boost productivity and incentivise attraction of a high quality workforce*. On the contrary, it would seem, the MTF is of the view that the HRH salary bill in the South African public sector is rather disproportionately high when measured against public sector THE. It is indisputable that the salary wage bill is high as a proportion of THE, what would be a sensible policy recommendation is rather to recommend that National Treasury re-evaluates and makes all efforts to improve expenditure on health during the budgeting period. It is a well-known fact that “health systems can only function with health workers; improving health service coverage and realising the right to the enjoyment of the highest attainable standard of health is dependent on their availability, accessibility, acceptability and quality.”

It is, therefore, not surprising that since the publication of the NDoH HRH Strategy, National Treasury has aggressively and significantly constrained allocation for health in the national budget.

POLICY REVISITED

An efficient, motivated and effective civil service is very important in five areas (1) Governance; (2) Production and distribution of public goods and services; (3) Economic policy; (4) Fiscal policy implementation; and (6) Fiscal sustainability. Beyond mere cost containment, therefore, the broad aim of civil service reform is the creation of a government workforce of the size and with the skills, incentives, ethos, and accountability needed to provide quality public services and carry out the functions assigned to the state in the specific country.

Rightsizing in terms of the public sector employment size is a relative notion. In South Africa, there is the oft talked about “government employment that is high”, while this is a useful “flag” for analysis; we believe, it proves nothing in and of itself. Determining the “right size” of a government workforce must be done while taking into account the:

- functions assigned to the state in the country,
- the degree of centralization,
- the skills profile, and, of course,
- the fiscal outlook.

The short-term fiscal savings from compressing wages are obvious, however, they have been inadvertently allowed to drive wage policy. Wage adequacy, like overstaffing, is also a relative concept. Determining the adequacy of wages requires a country-specific, in-depth comparison of public-private wage differentials for comparable skills. We accept that the more “market-oriented” approach of raising wages when skills are being lost and limiting them if there is an overabundance of applicants is generally impractical in South Africa, especially as there is a chronic shortage of medical professionals (health workers at large)

and fiscal constraints that delimit flexibility in wage setting. We further note that, when public wages are too high relative to private wages, public wage cuts may improve both resource allocation and equity.

It is our hypothesis that South Africa's public service barely offers competitive or adequate public wages when compared to its immediate counterpart, the private sector. As such, public wage cuts set in motion a vicious circle of **demotivation, underperformance,** and justification for further reductions. Fortunately, the reverse may also be true: even small wage increases can trigger a positive dynamic.[1]

The question therefore is, how does government value the [doctor] labour that produces the requisite output of the public health service, given that such output is generally not marketable. We believe, and literature agrees with our view, that the general solution is to make doctor compensation in the public service comparable (not necessarily equal) to that for equivalent skills which are marketed, i.e., private sector doctors.

There are four major objectives of public compensation policy, which must be met in practice:

1. Equal pay for equal work performed under the same conditions.
2. Differences in pay should be based on differences in work, responsibilities, and qualifications.
3. Levels of public sector pay must be comparable to those in the private sector.
4. Levels of public sector compensation should be periodically reviewed and systematically revised to assure the continued validity of the compensation plan.

In our review, we found great difficulty in identifying and quantifying non-wage public sector service benefits which created major problems when comparing private and public sector compensation, and also for cross-country comparisons. However, we noted the significant and extensive extent of the erosive impact of inflation on real public sector service compensation.

INDIVIDUAL COPING STRATEGIES

The literature is strewn with evidence of individual coping strategies that represent the health professionals' ways of dealing with unsatisfactory living and working conditions. Across the globe, such coping mechanisms and their prevalence have increased over recent years. While it is unclear, which came first, the conclusion is patently obvious, "the notion of the full-time civil servant exclusively dedicated to his/her public sector role is slowly but surely disappearing." If this notion was this without consequences for the performance of the public health sector, it would not be much of a problem.

As a mechanism to compensate for unrealistically low salaries, health workers have relied on individual coping strategies. [2] [3] [4] [5] [6] [7] [8] Not all coping strategies can be classified as predatory behaviour or corruption, and their effects on the health care system can be positive as well as negative. According to the literature, many clinicians resort to:

- combining salaried public sector clinical work with a fee-for-service private clientele (either with permission or without permission)
- absenteeism [9], or
- predatory behaviour,
 - asking under-the-counter payments for access to services intended to be free of charge or goods and/or
 - misappropriating drugs or other supplies and
 - referral of public sector patients to private practices [10].

IMPACT ON THE POLICY ON REMUNERATIVE WORK OUTSIDE OF PUBLIC SERVICE (RWOPS)

It is common-cause and we have already highlighted in this reports that that many clinicians combine salaried public-sector clinical work with a fee-for-service private clientele. This type of practice is commonly referred to as "dual practice (1)" in the international literature and is considered to be prevalent in most countries, if not all.

Nevertheless, there is scant hard evidence in South Africa about:

- i. the extent to which doctors and other healthcare workers resort to dual practice,
- ii. the balance of economic and other motives for doing so, or
- iii. the consequences for the proper use of the scarce public resources dedicated to health.

It must be noted that **dual practice is often a means by which doctors and other health workers try to meet their survival needs.** This practice to the extent that it exists, reflects the inability of the public health sector to ensure adequate salaries and less so, satisfactory working conditions.

(1) For the purposes of the review paper and in order to align our research and be consistent with the international literature, we will refer to RWOPS as "dual practice". Our review focuses specifically on dual practice where it is used to describe multiple health-related practices in the same or different sites i.e. different employment settings while rendering the same service.

REMUNERATION OF MEDICAL DOCTORS

BACKGROUND

Motivations are complex and many different factors can influence the choice of practice location for doctors. Among the many issues that can play a role, several factors have been identified to be of particular relevance:

1. First, the general attractiveness of the locational environment, including educational options for children, career opportunities for spouses as well as personal safety concerns, housing and access to cultural activities.
2. Second, the mode of employment, determining the options physicians have who enter the labour market or wish to take up a new position.
3. Third, the income potential, which is likely to be influenced by salary, payment schemes and other income generating sources as well as health financing arrangements.
4. Fourth, the working conditions a doctor faces, including working hours, access to appropriate medical equipment and support services, challenging patient populations, and career and professional development opportunities.
5. Fifth, issues of prestige and recognition play a role, as many medical students and physicians appear to value general medicine and in particular rural medicine less than other fields.
6. Finally, the expectations medical professionals have towards work and life in underserved regions and their capacity for adjustment to working in a rural or socio-economically challenged locations.

The supply of doctors in different localities is most commonly measured in terms of the number of doctors per population (physician density, or physician to population ratio). While the overall physician density has increased in South Africa over recent decades, disparities in the density between different parts of the country still exist. Typically, rural regions and socio-economically challenged urban regions have lower staffing than more affluent and/or urban ones, and a relatively high level of health worker availability is often observed in larger capital cities and metros.

Many doctors are reluctant to practice in rural and socio-economically disadvantaged urban regions due to various concerns regarding their career, family and lifestyle.

The Department of Health introduced the Occupation Specific Dispensation (OSD) and Rural Allowance incentives schemes to increase retention of doctors in the public sector and to influence or direct the choice of practice location. Financial incentives have been used as an attempt to level the playing field and improve income potential for doctors as well in compensating for longer working hours or an otherwise less advantageous “geographies” for doctors in the public sector.

THE CONSUMER PRICE INDEX OVER THE ANALYSIS PERIOD

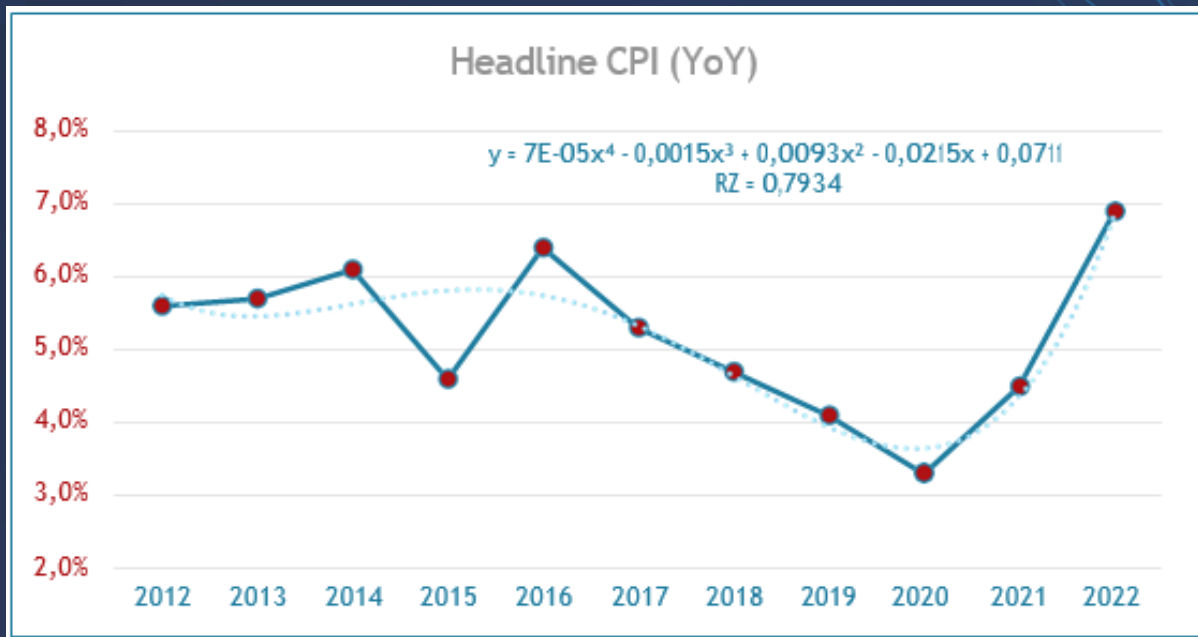


Figure 1: Headline CPI 2012-2022 - StatsSA

During the period, Headline CPI ranged a low of 3.3% in 2020 to as high as 6.9% in 2022. Average CPI for the period is 5.2% with a standard deviation of 0.011 [1,1%]

ANALYSIS OF SALARIES FOR DOCTORS IN THE PUBLIC SECTOR

SUMMARY OF TECHNICAL METHODOLOGY

1. In order to calculate the Expected salary for year(t), we applied the published average annual inflation for the year t-1 to the DPSA published salary scale in year (t-1).
2. The difference between the published salary scale in year(t) and year(t-1) is the Nominal increase from year(t-1) to year(t).
3. The difference between the Expected Salary and the Actual Salary in year(t+1) is denoted as the "Delta":
 - i. The Delta is positive (higher than expected increase) where the Actual Salary in year(t+1) is greater than the Expected Salary in year(t+1), and
 - ii. The Delta is negative where the Actual Salary in year(t+1) is less (lower than expected increase) than the Expected Salary in year(t+1).
 - iii. Where the Delta is negative, this translates into a salary reduction in Real terms year-on-year (YoY).
4. We then calculated the percentage increase(decrease) in Real terms.

SUMMARY OF FINDINGS

1. Between 2013 up to 2016, on, average, **the annual increase exceeded Headline CPI**, i.e. salaries grew in real-terms. This was largely due to DPSA recognising higher than inflation cost-of-living pressures.
 1. A zero percent (0%) increase was granted in FY2020.

2. The increase in 2021 and 2022 was below Headline CPI, i.e. an effective salary reduction in real-terms.
3. Since 2020, doctors have been experiencing a net salary reduction in real-terms, year-on-year.
4. The net salary Increase since 2012 is a measly ~1,3% across all groups:
 - i. This means, in March 2023, doctors earn the equivalent of what they earned in 2013 / 2014 in real-terms.
5. The effective aggregate reduction in salaries in real-terms since 2020 is 7,4%:
 - i. This means, in March 2023, doctors earn 7,4% less than they earned in July 2019 -
 - a. for Medical Officer (Interns), the net effective median loss over the last three years is R37 300 (i.e. average salary reduction ~R12 000 per annum for three consecutive years); and at the other extreme end
 - b. for Sub-Specialist (Grade 3) the net effective median loss over the last three years is R127 300 (i.e. average salary reduction of ~R42 000 per annum for three consecutive years)

The public service wage management policy implemented over the last three years has led to a significant erosion in income levels for doctors particularly when one takes into account inflation as well as cost-of-living pressures.

OVERALL ANALYSIS FINDINGS

CALCULATING EXPECTED SALARIES OVER THE PERIOD

The median annual salary for a Medical Officer (Intern) was 525 722 in 2022. When calculating the expected salaries using the methodology described earlier, we find that the annual salary for this position should be 533 378 in 2022; however, when factoring in the zero-percent increase granted in 2020, the correct and adjusted expected salary should be 565 094. (See Figure 2)

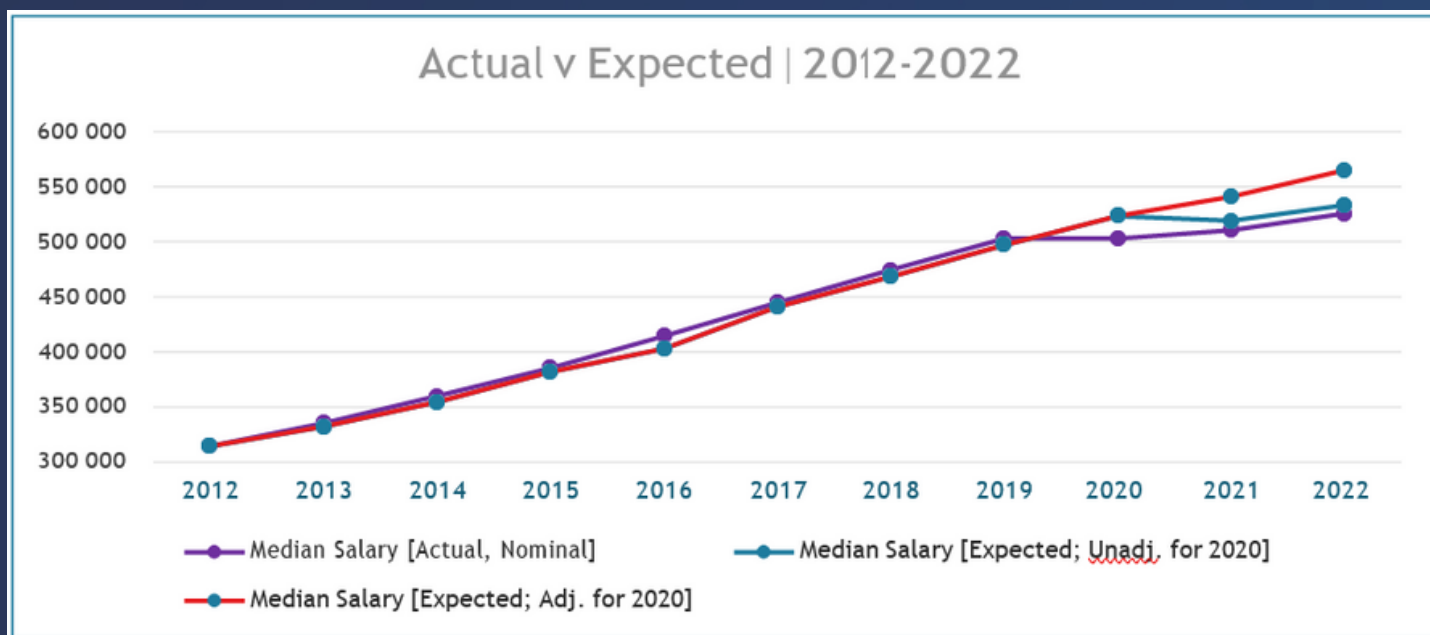


Figure 2: Actual versus expected salaries

SHORT-FALL AND EXCESS ANALYSIS

The increases granted to medical doctors in 2020, 2021 and 2022 were 0%, 1,5% and 3% respectively. When comparing to our expected salary benchmarks, the net financial impact of the below inflation increases over this period as experienced by Medical Officer (Intern) since 2020 is an aggregate net impact of -90 341 or an average of -30 114 per annum. The public health sector has made a total saving of the same amount per employee over the period. This means, this category of doctors, have experienced an impact of -30 114 per annum in their salaries over the period 2020-2022. The 10-year overview is demonstrated in Figure 3.

The specific per year earnings depreciation are:

- -3,94% in 2020,
- -5,61% in 2021, and
- -6,97% in 2022.

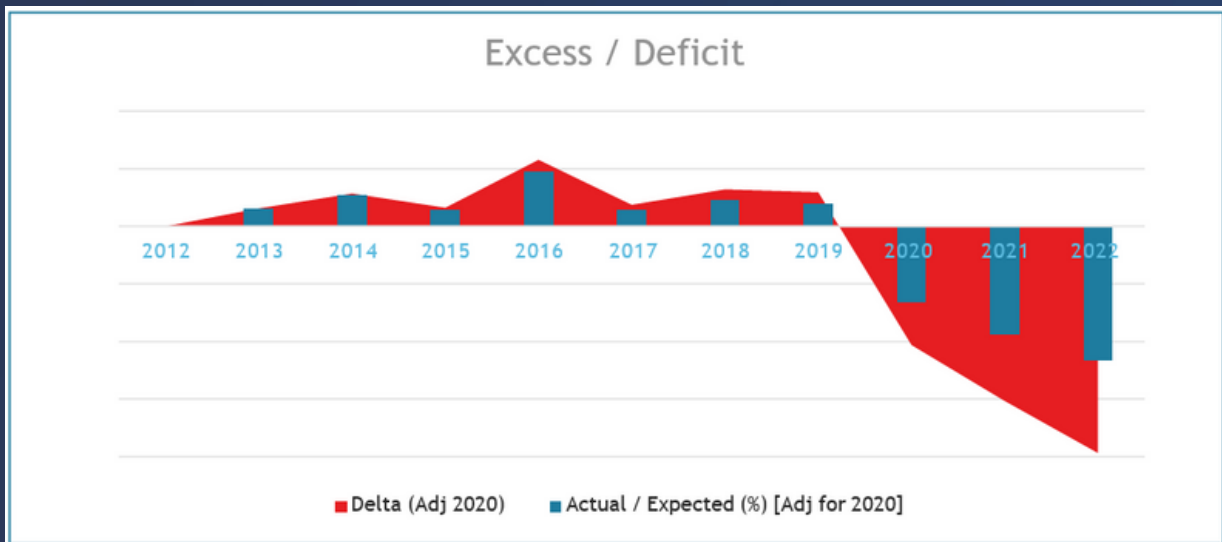


Figure 3: Excess / Shortfall analysis

The actual year-on-year financial impact for this position is -3,94% in 2020, -5,61% in 2021, and finally and currently at -6,97% in 2022.

MODELLING OF FUTURE SALARY ADJUSTMENTS

We have modelled requirements for salary adjustment for the 2023 up to and including 2026. These are not an attempt to adjust salary scales to what they should be against other comparative benchmarks, but this is an attempt to correct for the lost income since 2020. As noted earlier the effective lost income since 2020 is ~7%.

- We have factored projections of Headline CPI for the years 2023, 2024 and 2025 in our modelling across all categories.
- We believe there are two options against two distinct proposals (i.e., a 2x2) available to SAMA in this regard.

Option 1

- The red line indicates what the true “Expected” salary scale.
- The dashed red line indicates what we believe the salary increments need to be to restore parity by 2026.
- This is the desirable modelled adjustment for doctors.

Option 2:

- The turquoise line indicates the alternative “Expected” salary scale (where no correction is made for the ‘Zero’ increment of 2020).

RESTORING PARITY

In order to restore parity, the public sector must increase salaries accordingly and re-establish what was a pre- 2020 benchmark when adjusting for inflation, there are two options in this adjustment (see red hashedline in Figure 4).

- I. Salaries must be adjusted by a. 7,32% in 2023
b. 7,32%in 2024
c. 7,32%in 2025 and
d. 7,32%in 2026

or

- II. Salaries must be adjusted by
a. 6,9%in 2023;
b. 8,13%in 2024;
c. 8,13%in 2025 ; and
d. 8,13%in 2026

Projections and Corrections

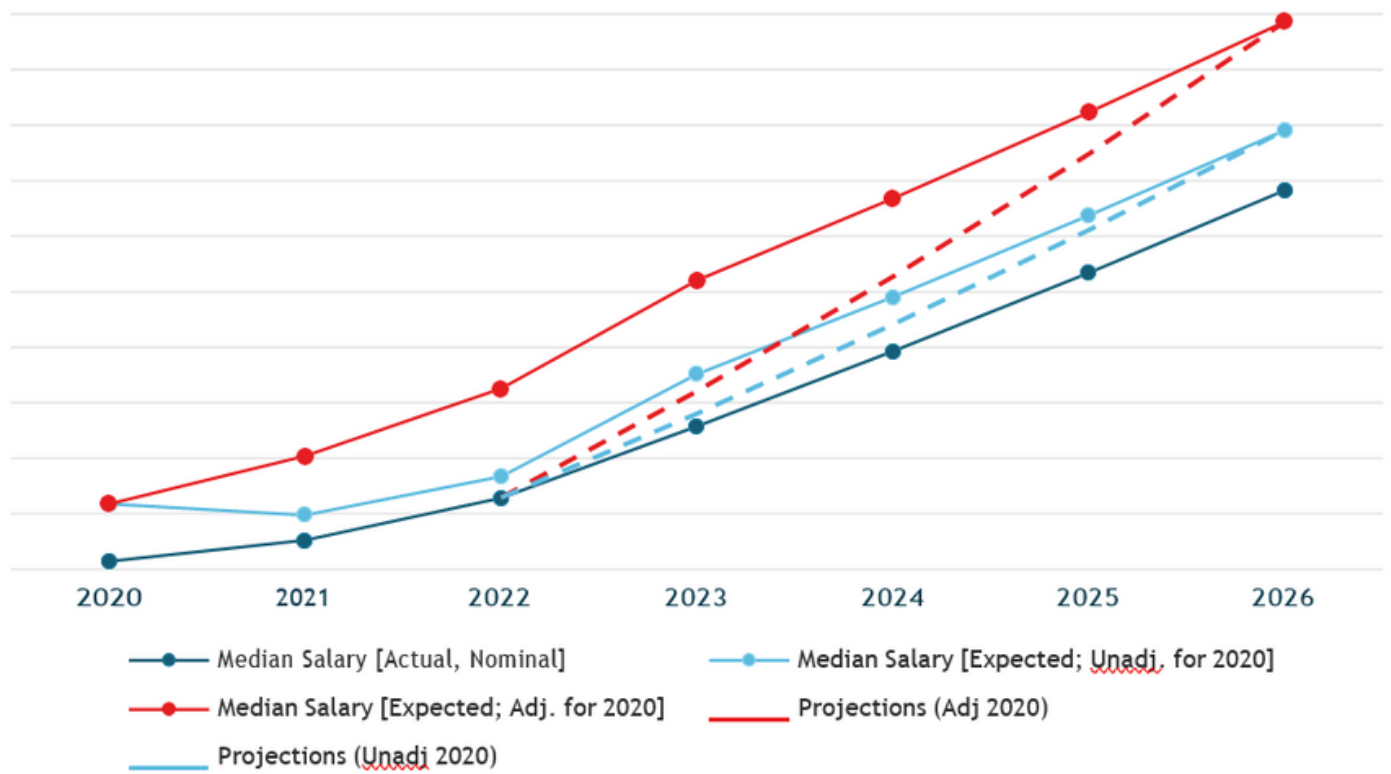


Figure 4: Projected salary increases required to establish parity

PRIVATE SECTOR COMPARISON

PRIVATE SECTOR GENERAL PRACTITIONER REIMBURSEMENT

We mapped in the out-of-hospital visit rate for the period by applying average headline CPI published for the preceding year. [11] The results are shown in Figure 5.

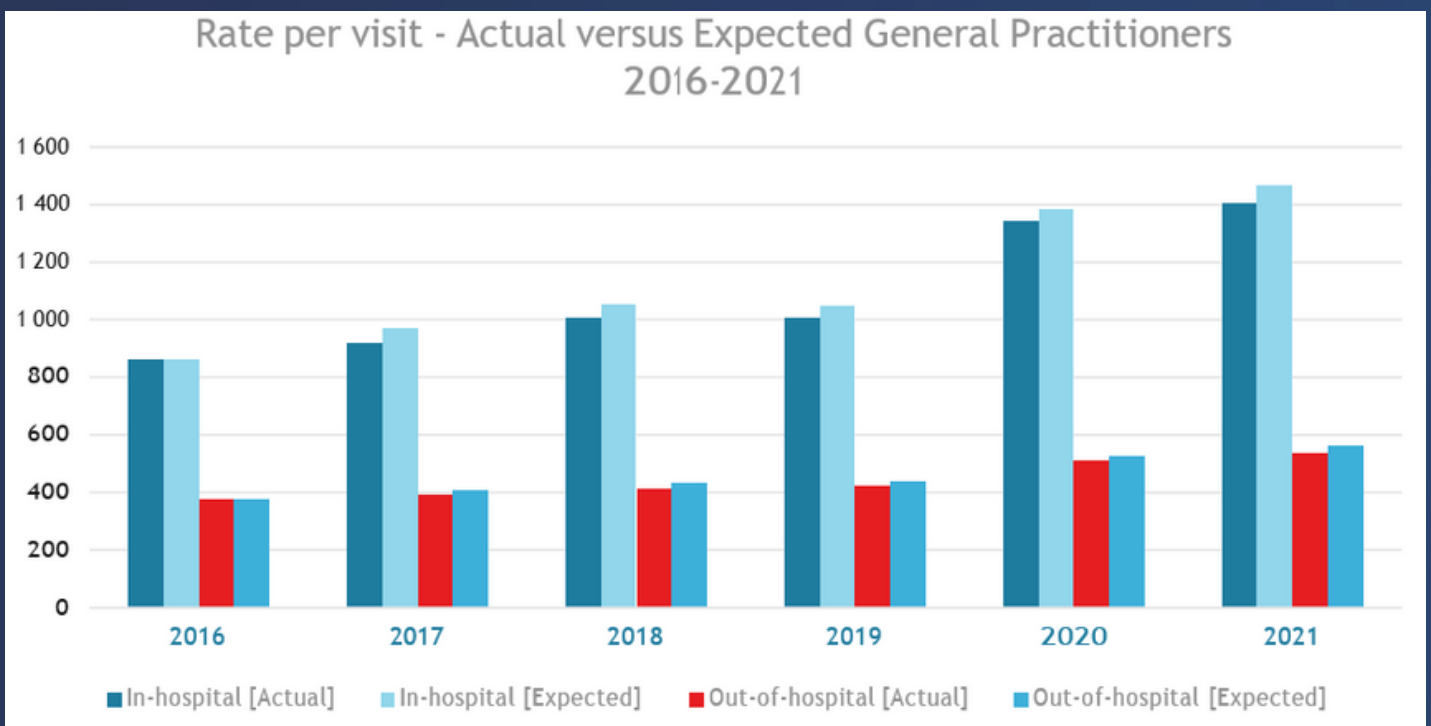


Figure 5: Private sector visit rates for GPs

The results are consistent with the literature, General Practitioner reimbursement by medical schemes is consistently below inflation year-on-year.

In order to compare income levels across the two sectors, public versus private, we made the following assumptions:

	Salaried Employee - Hours	Self-employed GPs- Consults ²
Per Day	9	36
Per Weeks	45	180
Per Month	196	783
Per Year	2348	9392

Table 1: Cross-sector comparisons - benchmarks

FINDINGS

Our estimated gross revenue for a general practitioner is indicated in Table 2.

	2016	2017	2018	2019	2020	2021
Estimated Remuneration per annum (9 hr day)	3 521 772	3 660 986	3 887 264	3 972 973	4 796 583	5 065 482
Estimated Remuneration per annum (8 hr day)	3 130 464	3 254 210	3 455 346	3 531 531	4 263 629	4 502 650

Table 2: Estimated gross income per annum - General Practitioners

In order to be generous and conservative with our estimates, we opted to use the 8-hour day revenue estimate as the basis for comparison. We set a range of income targets as a proportion of gross revenue [range 0,4-0,65], the output is depicted in Table 3.

	2016	2017	2018	2019	2020	2021
Gross Revenue	R3 130 463	R3 254 209	R3 455 345	R3 531 531	R4 263 629	R4 502 650
GP Salary as a percentage of gross revenue						
40%	1 252 186	1 301 684	1 382 138	1 412 612	1 705 452	1 801 060
45%	1 408 709	1 464 394	1 554 906	1 589 189	1 918 633	2 026 193
50%	1 565 232	1 627 105	1 727 673	1 765 766	2 131 815	2 251 325
55%	1 721 755	1 789 815	1 900 440	1 942 342	2 344 996	2 476 458
60%	1 878 278	1 952 526	2 073 208	2 118 919	2 558 177	2 701 590
65%	2 034 801	2 115 236	2 245 975	2 295 495	2 771 359	2 926 723

Table 3: Estimates of private sector GP salary

In order to establish parity, we assumed that a typical consultation lasts ~15 minutes allowing for time lost during patient transition. We limited the GPs working hours to be equivalent of the public service employee in order to analyse like-for-like.

We compared these finding against the 2021 public sector salaries for similar ranking doctors (i.e. medical officers and registrars), the comparative table is included below in Table 4.

Job Category / Role	Median Salary	Minimum Salary	Maximum Salary
Registrar (Medical)	852 374	833 523	871 593
Medical Officer Grade 1	865 154	833 523	897 939
Medical Officer Grade 2	996 570	953 049	1 042 092
Senior Registrar (Medical)	1 148 019	1 122 630	1 173 909
Medical Officer Grade 3	1 236 737	1 106 037	1 382 802

Table 4: 2021 Public sector salaries for comparative medical practitioners' positions

Based on our analysis, it is clear that private sector income for a doctor is attractive and better with potentially working conditions, flexibility and autonomy. It goes without saying that unless there is a concerted effort to ensure income parity and other on-the-job incentives in addition to improved working conditions, infrastructure, workload, the public service remains unattractive for most doctors.

INTERNATIONAL COMPARISONS

In a paper published regarding international salary benchmarks for physicians, the authors retrieved wages data were retrieved from the ILO wage estimate database for a variety of job titles across countries, and then classified into four skill levels according to ISCO-08 Major Groups. The ISCO major skill levels groups are shown in Table 5.

ISCO-08 major group	Skill level
Professionals	4
Technicians and associated professionals	3
Clerical support workers	2
Elementary occupations	1

Table 5: Definition of ISCO-08 Major skill level groups

As many occupations are represented for each of the skill levels in the ILO database, we selected earnings for medical professions wherever possible;

- For skill Level 4, data extraction focussed on earnings for general physicians, dentists and professional nurses, and
- For skill Level 3 the data extraction focussed on earnings for medical X-ray technicians, physiotherapists and auxiliary nurses.

World bank income categories	Health worker cadre	Average earnings index (multiple of GDP per capita)
High-income countries	Physicians	1.9
	Nurses and midwives	1.5
	Other health workers	0.9
Upper-middle-income countries	Physicians	2.7
	Nurses and midwives	2.2
	Other health workers	1.3
Lower-middle-income countries	Physicians	5.1
	Nurses and midwives	4.2
	Other health workers	2.4
Lower-income countries	Physicians	7.8
	Nurses and midwives	6.4
	Other health workers	3.7
Global	Physicians	4.4
	Nurses and midwives	3.6
	Other health workers	2.1

Table 6: Health worker earnings as a multiple of GDP per capita

We then extracted South Africa's GDP per capita figures as published the World Bank, see Figure 6. According to the data published by the World Bank group, South Africa's GDP per capita was 104 264 in local currency at the end of 2021. [12]

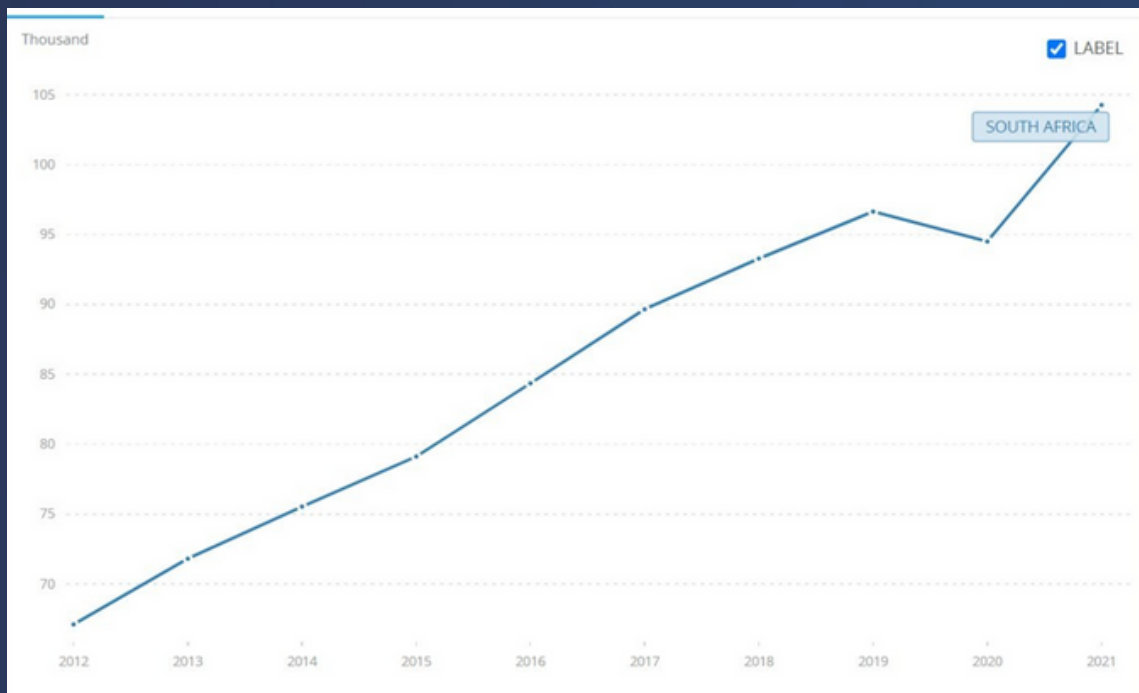


Figure 6: Gross Domestic Product per Capita (South Africa, 2011-2021), World Bank

Therefore, if we apply the global estimates from Serjeet al., we estimate that the mean doctor salaries in South Africa's public sector should range between 5.1-7.8GDP per capita multiples. Based on the assumption of proportionality, we calculated the average doctor salary was found to be 1 002 081 per annum. The average income of salary for doctors in the public sector is estimated to be 9,61 times the GDP per capita.

Our estimates suggest that South Africa's public health sector pays above what the published literature estimates similar income-level countries pay. We note that the study by Serje et al is outdated and perhaps more empiric literature might suggest differently.

CONCLUDING REMARKS

Over the past several years, government has taken steps to contain consolidated compensation costs, which account for 31.4 percent of consolidated expenditure in 2022/23 – down from 34.5 percent in 2019/20. Managing the wage bill is critical for ensuring sustainable public finances.

Over the past ~15 years, the consolidated government wage bill grew significantly, mostly as a result of above inflation wage increases. In the context of slow economic growth, the growing wage bill began crowding out spending in other critical areas, including service delivery. Between the 2020 Budget and the 2021 Budget, government reduced the medium-term compensation of employees' baselines by more than R300 billion to stabilise the public finances.

National Treasury committed itself to future wage negotiations that will aim to strike a balance between remuneration increases and the need for additional staff in services such as education, health and police. Although the number of doctors (and other health workforce cadres) has grown over the last few years, the overall population has grown faster, this underlines the importance of health workforce planning and alignment with remuneration practices. Incoherence at the policy level is undermining service delivery.

Over the last decade, negotiated annual cost-of-living adjustments have exceeded consumer price index (CPI) inflation by an annual average of 2 percent. In some financial years, this resulted from wage agreements set well above the prevailing inflation rate. This was particularly noticeable during 2007/08 to 2009/10 when occupation-specific dispensation was introduced and implemented for public-service employees in selected sectors.

The current wage policy in the public sector is not without consequence. We posit that it actually undermines service delivery and perhaps has an overall negative macroeconomic impact. A fine balance must be struck. We know and understand that it is the main driver for dual-practice, we postulate that it will undoubtedly drive predatory and corrupt practices that will further compromise service delivery.

Our findings reveal that doctors (and other human resources for health) employed in the public health sector have significantly reduced their earning over the last 3 fiscal years. The impact is larger when factoring-in cost-of-living pressures felt by doctors. An appropriate salary negotiation process must be undertaken as a corrective process over the medium term expenditure framework to limit the public sector brain drain and improve service delivery. The alternative is unthinkable, it is hard to imagine that doctors will remain committed and dedicated to the public service when alternative income is patently more attractive and rewarding.

REFERENCES

- [1] Schiavo-Campo S, de Tomasso G, Mukherjee A, "Government Employment and Pay in Global Perspective: A selective synthesis of international facts, policies and experience.," World Bank, Washington DC.
- [2] Ferrinho P, Abreu A, Van Lerberghe W, "Health Manpower Policies in Southern Africa: The Contribution of Research.," EC-INCO-DC, Brussels,1994.
- [3] Roenen C, Ferrinho P, Van Dormael M, Conceição MC, Van Lerberghe, "How African doctors make ends meet: an exploration," *Trop Med Int Health*,vol. 2, no. 2, pp. 127-135,1997.
- [4] Ferrinho P, Van Lerberghe W, Julien MR, Fresta E, Gomes A, Dias F, "How and why public sector doctors engage in private practice in *Portuguese-speaking African countries*," *Health Policy and Planning*, vol. 13, no. 3, pp. 332-338,1998.
- [5] Ferrinho P, Van Lerberghe W, da Cruz Gomes A, "Public and private practice: a balancing act for healthstaff.," *BullWorld Health Organ*, vol. 77, no. 3, pp. 209-, 1997.
- [6] Ferrinho P, Van Lerberghe W, "Providing Health Care Under Adverse Conditions. Health Personnel Performance and Individual Coping Strategies.," ITG Press, Antwerp,2000.
- [7] B. R. M. E. Saltman R, Ed., "Corruption as a challenge to effective regulation in health sector.," in *Regulating Entrepreneurial Behaviour in European Health Care Systems*., European Observatory Series ed., Maidenhead, Open University Press, 2002.
- [8] Israr SM, Razum O, Ndiforchu V, Martiny P, "Coping strategies of health personnel during economic crisis: a case study from Cameroon.," *Tropical Medicine and International Health*, vol. 5, pp. 288-292, 2000.
- [9] Macq J, Van Lerberghe W, "Managing health services in developing countries: between the ethics of the civil servant and the need for moonlighting.," *Human Resources for Health Development Journal*, vol. 5, no. 3, pp. 17-24, 2001.
- [10] Ensor T, Duran-Moreno A, "Corruption as a challenge to effective regulation in health sector.," in *Regulating Entrepreneurial Behaviour in European Health Care Systems*., European Observatory Series ed., B. R. M. E. Saltman R, Ed., Maidenhead, Open University Press,2002.
- [11] Statistics South Africa, "Consumer Price Index | CPI History," [Online]. Available: <https://www.statssa.gov.za/publications/P0141/CPIHistory.pdf?>. [Accessed 18 March2023].

[12] World Bank, "GDP per capita," [Online]. Available: <https://data.worldbank.org/indicator/NY.GDP.PCAP.CN?end=2021&locations=ZA&start=2011>. [Accessed 13 May 2023].

[13] United Nations General Assembly, "Transforming Our World: The 2030 Agenda for Sustainable Development," United Nations, 2015. [Online]. Available: http://www.un.org/ga/search/view_doc.asp?symbol=A/70/L.1&Lang=E. [Accessed 19 November 2021].

[14] Liu JX, Goryakin Y, Maeda A, Bruckner T, Scheffler R, "Global Health Workforce Labor Market Projections for 2030.," *Hum Resour Health*, vol. 15, no.1, p. 11, 2017.

[15] Government of South Africa, "National Development Plan 2030: Our future - make it work," [Online]. Available: https://www.gov.za/sites/default/files/gcis_document/201409/ndp-2030-our-future-make-it-workr.pdf. [Accessed 06 May 2023].

[16] National Department of Health, "2030 Human Resources for Health Strategy: Investing in the Health Workforce for Universal Health Coverage," Government Printers, Pretoria, 2020.

[17] Chen L, Evans T, Anand S, Boufford JI, Brown H, Chowdhury M, et al., "Human resources for health: overcoming the crisis.," *Lancet*, vol. 364, pp. 1984-1990, 2004.

[18] Jimba M, Cometto G, Yamamoto T, Shiao L, Huicho L, Sheikh M, "Health workforce: the critical pathway to universal health coverage. Background paper," 2010. [Online]. Available: http://healthsystemsresearch.org/hsr2010/images/stories/10health_workforce.pdf. [Accessed 23 April 2023].

[19] Scheffler RM, Mahoney CB, Fulton BD, Poz MRD, Preker AS, "Estimates of health care professional shortages in Sub-Saharan Africa by 2015," *Health Aff (Millwood)*, vol. 28, pp. w849-862, 2009.

[20] Bruckner TA, Scheffler RM, Shen G, Yoon J, Chisholm D, Morris J, et al., "The mental health workforce gap in low- and middle-income countries: a needs-based approach.," *Bull World Health Organ*, vol. 89, pp. 184- 194, 2011.

[21] Anand S, Bärnighausen T, "Health workers at the core of the healthsystem: framework and research issues.," *Health Policy*, vol. 105, pp. 185-191, 2012.

[22] Scheil-Adlung X., "Health workforce benchmarks for universal health coverage and sustainable development.," *Bull World Health Organ*, vol. 91, p. 888, 2013.

[23] Castillo-Laborde C, "Human resources for health and burden of disease: an econometric approach.," *Hum Resour Health*, vol. 9, no. 4, 2011.

- [24] McPake B, Maeda A, Araújo C, Lemiere C, El Maghraby A, Cometto G., "Why do health labour market forces matter?," *Bull World Health Organ*, vol.91, pp. 841-846, 2013.
- [25] McPake B, Scott A, Edoxa I., "Analyzing Markets for Health Workers: Insights from Labor and Health Economics.," World Bank, Washington DC, 2014.
- [26] World Health Organization, "Sixty-Seventh World Health Assembly | WHA67/2014/REC/1," 19 May 2014. [Online]. Available: https://apps.who.int/gb/ebwha/pdf_files/WHA67-REC1/A67_2014_REC1-en.pdf. [Accessed 13 March 2023].
- [27] World Health Organization, "Healthworkforce," [Online]. Available: https://www.who.int/health-topics/health-workforce#tab=tab_1. [Accessed 13 March 2023].
- [28] National Treasury, "National Budget 2023/2024," February 2023. [Online]. Available: <https://www.treasury.gov.za/documents/National%20Budget/2023/review/FullBR.pdf>. [Accessed 15 March 2023].
- [29] Hanvoravongchai P, Letiendumrong J, Teerawattananon Y, Tangcharoensathien V, "Implications of private practice in private hospitals on the caesarean section rate in Thailand.," *Human Resources for Health Development Journal*, vol. 4, no. 1, pp. 1-2, 2000.
- [30] Bellanger M, Mossé R, "Contracting within a centralised health care system: the ongoing French experience (first draft).," in *First meeting of the European Health Care Systems Discussion Group (EHCS DG) 14th-15th September 2000*, London, 2000.
- [31] Venieris D, "The history of health insurance in Greece: the nettle governments failed to grasp. London," *LSE Health. Discussion paper no. 9.*, 1997.
- [32] Turone F, "Italian GPs suspended for accepting bribes.," *British Medical Journal*, vol. 316, pp. 1264-, 1998.
- [33] Dyer O, "GP struck off for fraud in drugs trial.," *British Medical Journal*, vol. 312, pp. 798-, 1996.
- [34] Dis-chem, "Dis-chem Health," Dis-chem, [Online]. Available: https://dischemhealth.co.za/medical-insurance/?campaign=17333714817&content=&utm_term=&gclid=EAlaIqObChMIqZnF9qLu_glViZ93Ch3k6ghrEAYASAAEgl7I_D_BwE. [Accessed 11 May 2023].
- [35] Clicks, "Clicks Healthcare Services," Clicks Group, [Online]. Available: <https://clicks.co.za/healthcareservices>. [Accessed 11 May 2023].
- [36] Cederlof C, Tomson G, "Private pharmacies and the health sector reform in developing countries – professional and commercial highlights.," *J Social Adm Pharmacy*, vol. 3, pp. 101-111, 1995.

[37] Backström B, Gomes A, Adam Y, Fresta E, Dias F, Gonçalves A, Macq J, Van Lerberghe W, Ferrinho P, "The coping strategies of rural doctors in Portuguese speaking African countries.," *S Afr Fam Practice*, vol. 19, no. 1, pp. 27-29,1998.

[38] Macq J, Van Lerberghe W, "Managing healthservices in developing countries: moonlighting to serve the public?.," *Studies in Health Services Organisation & Policy*, vol. 16, pp.177-186, 2000.

[39] McPake B, Asiimwe D, Mwesigye F, Ofumbi M, Streefland P, Turinde A, "Coping strategies of health workers in Uganda.," *Studies in Health Services Organisation & Policy*, vol. 16, pp. 157-162, 2000.

[40] Di Tella R, Savedoff WD,, "Diagnosis Corruption. Fraud in Latin America's Public Hospitals.," Inter-American Development Bank, Washington DC, 2001.

[41] Van Lerberghe W, Conceicao C, Van Damme W, Ferrinho P, "When staff is underpaid: dealing with the individual coping strategies of health personnel.," *Bull World Health Organ*, vol.80, pp. 581-,2002.

[42] Van Lerberghe W, Ferrinho P, "From human resources planning to human resources impact assessment: changing trends in health workforce strategies.," *Cah Socio Démo Med*, vol.42, no. 2-3,pp. 167-178, 2002.

[43] Ferrinho, P., Van Lerberghe, W., Fronteira, I. et al., "Dual practice in the health sector: review of the evidence.," *Hum Resour Health*, vol. 2, no. 14, 2005.

[44] Bardhan P, "Corruption and development: a review of issues.," *Journal of Economic Literature*, vol. XXXV, pp.1320-1346, 1997.

[45] Donabedian A, "Explorations in Quality Assessment and Monitoring. The Definition of Quality and Approaches to its Assessment.," Health Administration Press, 1980.

[46] Institute of Medicine., *To Err Is Human: Building a Safer Health System.*, Washington, DC: The National Academies Press, 2000.

[47] Hodess R, Banfield J, Wolfe T, Ed., "Global Corruption Report 2001," Transparency International, Berlin, 2001.

[48] World Bank, "Service Delivery, Poverty and Corruption – Common Threads from Diagnostic Surveys," World Bank, Washington DC,2004.

[49] International Monetary Fund, "IMF Research on corruption. In Global Corruption Report 2001," Transparency International, Berlin, 2001.

[[50] Serje, J., Bertram, M.Y., Brindley, C. et al., "Global health worker salary estimates: an econometric analysis of global earnings data.," *Cost Eff Resour Alloc*, vol.16, no. 10, 2018.

[51] Council for Medical Schemes, "CMS Annual Report 2021/2022," Council for Medical Schemes, Pretoria, 2022.

[52] StatsSA, "What is the Consumer Price Index?," 1 July 2013. [Online]. Available: <https://www.statssa.gov.za/?p=955>. [Accessed 7 May 2022].

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