NOTICE

Reference: Section 59 Investigation Report
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Date: 4 December 2023

Notice: Section 59 Investigation – Opportunity to Comment on Dr Kimmie's New Report and Provide Written Justifications for Any Unfair Discrimination

1. The Panel has received Dr Kimmie's additional analysis ("**Dr Kimmie's third report**") based on the additional data provided by Discovery Health, Medscheme and GEMS, post the hearings in July 2023. Dr Kimmie's third report is attached to this notice, marked Annexure "**A**".

2. The Panel made Dr Kimmie's third report available for comment to Medscheme, GEMS and Discovery Health on 24 November 2023. The Panel asked that Medscheme, GEMS and Discovery submit their comments by Monday, 11 December 2023.

3. Since then, the Panel has received a request for an extension to provide comments from Discovery. The Panel has not received any correspondence from Medscheme or GEMS.

4. In the circumstances and to ensure procedural fairness for all interested parties, the Panel makes Dr Kimmie's third report available for comment to all interested parties.

5. The general closing date for comments (including comments from Medscheme, GEMS and Discovery Health) has been extended to **Friday, 12 January 2024.**

6. In addition to comments which Medscheme, GEMS and Discovery Health may have on the third report, the Panel also wishes to provide these parties with an opportunity to rebut any presumption of unfairness following from the findings in Dr Kimmie's third report, which may be relied upon by the Panel. The Panel requests Medscheme, Discovery Health, and GEMS to provide their written justifications for these outcomes (or arguments regarding fairness) on the basis that they assume that they bear the onus to justify the discrimination as being fair – should

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the Panel decide to rely on Dr Kimmie's reports. These written justifications are also to be provided by no later than **Friday, 12 January 2024.**

7. The Panel emphasises that the data on which Dr Kimmie relied in this third report and the previous two reports attached to the Interim Report, is data on the <u>FWA outcomes</u> – it is Medscheme, GEMS and Discovery Health's data relating to providers who were found guilty of FWA by the schemes and administrators themselves. The data is an uncontroversial recordal of the providers whom Medscheme, GEMS and Discovery Health found had committed FWA. The FWA Outcomes Data is <u>not</u> a recordal of providers who were flagged by the FWA systems as possibly having committed FWA. Kindly ensure that any justification of the discriminatory outcomes bear this fact in mind.

8. The Panel intends to complete its Final Report as soon as reasonably possible, after having received the aforementioned comments and written justifications.

The Investigation Panel is completely independent of the Council for Medical Schemes, and all queries related to the Section 59 Investigation should be directed to the Secretariat/briefing attorneys of the Panel, Lawtons Africa as follows:

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/Ends/

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Racial Discrimination in Identifying Fraud, Waste and Abuse: Additional Analysis

Compiled by
Dr. Zaid Kimmie

Friday 24th November, 2023

Contents

Introduction and Structure of Report

1. This report should be read in conjunction with previous reports that I have submitted to the Panel.

2. Based on the analysis previously conducted and the responding reports submitted by the experts retained by parties the Panel requested further statistical information from Discovery, MedScheme and GEMS (collectively referred to as the schemes in the remainder of this document), as set out below.

3. My initial analysis did not account for any measure of the level of interaction between a practitioner and the scheme and therefore, by treating a practitioner with relatively few interactions as identical to a practitioner with a large number of interactions potentially biased my results.

4. The schemes were therefore each asked to provide a count of the number of interactions (visits or claims) of each practitioner, per year, with their scheme.

5. I also noted that the list of practitioners contained a number of entities that were of a corporate nature (partnerships, hospitals, franchises) and that assigning these entities a default racial classification of "Not Black" also potentially biased the results of my analysis.

6. I have, elsewhere, responded to the assertions that other potential confounding variables should be considered in the analysis. My position remains unchanged – the candidate variables proposed do not meet the technical requirements to be considered as confounders.

7. However, I will take this opportunity to deal with the assertion that being on "direct payment" is a potential confounder. Recall (the complete details are in the previous reports that I submitted) that the formal definition of a confounder is:

   - A variable associated with the exposure (in our case it must be associated with race)

- A variable associated with the outcome (being found guilty of FWA)

- A variable that is not an intermediate variable in the causal pathway between exposure and outcome (it cannot be a consequence of race)

I have noted elsewhere that only in the Discovery expert submission was the correct definition provided, but that in the subsequent analysis this definition was ignored and an incorrect definition applied.

In the case of direct payment we know that Black practitioners are **more likely** to be on direct payment. From the DH data in 2019, for example, 10,423 Black practitioners were on direct payment, and 2,410 were not. So, 81% of Black practitioners were on direct payment. In the same year 17,297 Not-Black practitioners were on direct payment, and 9,314 were not. So, 65% of Not-Black practitioners were on direct payment. The data for the other years is not significantly different and does not change the assertion made.

I note that it does not matter that more not-Black than Black practitioners were on direct payment – I am making a statement about the relative proportions and not the absolute numbers.

Finally, it would seem obvious that this relationship (Black practitioners are more likely to be on direct payment) is due to the fact that Black practitioners are more likely to be dealing with patients who are not able to carry the cost of treatment. There is thus a causal relationship between being a Black practitioner and being on direct payment, and by our definition direct payment cannot be considered a confounder.

1.1 Analysis

1. The complete code used to produce these additional results will be submitted as an appendix to this analysis.

2. **Inclusion of corporate practices** I will use two versions of the data – one in which the easily identifiable corporate practices have been removed and one containing all practices. In particular all practices whose names included terms such as "INCORPORATED, HOSPITAL, MEDICLINIC, CLINIX, PRIVATE CLINIC, GENESIS, NETCARE, LIFE, HOSPITIUM, DONALD GORDON, PRIVATE, CLINIC, PARTNER, AMBULANCE, CLICKS" have been removed from the "reduced" version of the data set. This accounts for just under 6,500 practices.

3. The analysis below will be run separately for each version of the data set.

4. The number of interactions between the practitioner and the scheme has been included in the data. I will analyse each scheme separately and not attempt to consolidate the results across all schemes.

5. The question of how to treat the number of visits analytically remains something of a challenge. One option is to treat them simply as a measure of the weight to attach to each practitioner, and therefore use them in their raw form. This option runs the risk that the results could be affected by a small number of outliers. An alternative is to categorise the number of visits into deciles,[1] i.e. treat them as (ordinal) categories ranging from 'low' (the first decile) through to 'high' the tenth decile. In the analysis that follows I will use both approaches.

6. I have noted the comments, particularly by the Discovery experts, about the correct unit of interest. In the analysis that follows I believe that the correct unit of interest is the practice, and that by stratifying the analysis by year (as I will do below) and by accounting for number of visits we will effectively deal with the objections raised.

7. Finally, the analysis will make use of a logistic regression[2] to fit a model to the data. The variable of interest is whether or not there is a difference in outcomes (being found to have committed FWA) between Black and Not Black practitioners. The output of a logistic regression model is the natural log of the odds ratio. I will for clarity convert this output to a risk ratio, which is the measure used in initial report.[3]

8. I will fit three separate models:

   8.1 The base model will mimic my original analysis and fit the model "fwa ~ black" – asking the question about a relationship between being classified "Black" and have been found to have committed FWA.

   8.2 The second model will run the logistic regression but include the raw number of visits. This asks the question of whether there is a relationship between being classified "Black" and having been found to have committed FWA when accounting for the number of visits. The actual effect of the number of visits (that practitioners with larger number of visits were more likely to have been found to have committed FWA) is of no particular interest to us here, all we are concerned about is accounting for this effect when considering our original question.

   8.3 The third model is a copy of the second model, but with the variable for number of visits replaced with an ordinal variable (from 1 to 10) measuring the decile within which the number of visits fell.

9. As indicated above each of these three models will be run separately for each scheme, and for each year within that scheme, and for the full and reduced versions of the provider database. In total we will therefore run 156 models, as seen in the tables below.

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[1] 10 categories with approximately equal numbers of observation in each category, with the 1/10th of the lowest values falling in the first decile, etc

[2] In R I will use a general linear model (glm) specifying a binomial distribution.

[3] In particular I will use the function oddsratio_to_riskratio in R

10. In order to assist in the interpretation of the results I will give the risk ratio associated with the analysis (which should be interpreted as set out in my original report) and the 95% confidence interval associated with the risk ratio.

11. The caveats about how to interpret risk ratios, p-values and confidence intervals set out in my original report remain. The confidence intervals should serve as a guide for assessing the variability of the measure we are considering and not as an absolute measure. So, if the risk ratio is 1.1 with a 95% confidence interval of [1.02, 1.2] then we would be justified in saying that there may be some effect, but that it is likely not meaningful. On the other hand if the risk ratio is 2.5 with a 95% confidence interval of [1.9, 2.9] then we should be confident in our conclusion that there is some meaningful effect at play.

1.2   Modeling Results

1. The tables showing the detailed results of the analysis are given in the tables below. I will summarise the main findings here.

2. **GEMS**

    2.1 The base model with full PCNS data matches the original analysis very closely, with a risk ratio of 1.76 across the full data set, and at or about a risk ratio of 2 from 2015 onward.

    2.2 Including the raw number of interactions does not materially affect the estimates other than for 2013. In general the estimates were slightly higher with the raw number of interactions included.[4]

    2.3 Including categorised (into deciles) number of visits generally reduces the risk ratio slightly (from 1.76 across all years to 1.5).

    2.4 The base model with reduced PCNS data produces, in the main, slightly higher estimates of the risk ratio, but the difference is marginal.

    2.5 In conclusion, adjusting for the number of visits and the inclusion of corporate-type practices does not significantly affect my original findings with respect to GEMS.

3. **MedScheme**

    3.1 The base model with full PCNS data matches the original analysis very closely, with a risk ratio of 3.3 across the full data set, and at or about a risk ratio of 3 from 2017 onward. The extreme value of 8 that occurs in 2015 also matches the extreme value (of 9) in the original analysis.

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[4]It is likely that extreme outliers biased the results of this regression, but I have included it for completeness sake. This comment applies to all the regressions run with the raw number of visits.

3.2 Including the raw number of interactions does not affect the risk ratio estimates

3.3 Including categorised (into deciles) number of visits also does not affect the risk ratios.

3.4 The base model with reduced PCNS data produces, in the main, very marginally higher estimates of the risk ratio, but the difference does not appear to be meaningful.

3.5 In conclusion, adjusting for the number of visits and the inclusion of corporate-type practices does not significantly affect my original findings with respect to Medscheme.

4. **Discovery**

4.1 The base model with full PCNS data matches the original analysis very closely, with a risk ratio of 1.37 across the full data set. The slightly extreme value of 1.53 occurs in 2017.[5]

4.2 Including the raw number of interactions marginally increases the risk ratio estimates, to about 1.7.

4.3 Including categorised (into deciles) number of visits also increases the estimates of the risk ratios.

4.4 The base model with reduced PCNS data produces, in the main, results that are not materially distinguishable from that of the full PCNS data set.

4.5 In conclusion, adjusting for the number of visits and the inclusion of corporate-type practices does not significantly affect my original findings with respect to Discovery.

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[5]In the Discovery expert analysis this year was identified as an outlier, and removed from further analysis. Such a step is, in my view, not supportable and contaminates the remainder of their analysis.

1.3 Analysis Tables

Year	Base	Base + Visits	Base + Visits2
2012	1.47 [1.27, 1.71]	1.68 [1.43, 1.96]	1.16 [0.99, 1.36]
2013	1.62 [1.44, 1.81]	2.05 [1.82, 2.31]	1.32 [1.17, 1.49]
2014	1.75 [1.54, 2]	1.77 [1.55, 2.02]	1.46 [1.27, 1.67]
2015	2.08 [1.79, 2.41]	2.09 [1.8, 2.42]	1.72 [1.47, 2]
2016	2.3 [1.99, 2.66]	2.58 [2.22, 2.99]	1.96 [1.69, 2.28]
2017	2.45 [2.03, 2.97]	2.46 [2.03, 2.97]	2.11 [1.73, 2.56]
2018	1.84 [1.52, 2.21]	1.84 [1.53, 2.22]	1.58 [1.31, 1.92]
2019	1.89 [1.27, 2.83]	1.89 [1.27, 2.83]	1.71 [1.14, 2.56]
All Years	1.76 [1.66, 1.87]	2.18 [2.05, 2.32]	1.5 [1.41, 1.61]

Table. 1.1. Race and FWA outcomes, 2012-2019, GEMS, All PCNS

Year	Base	Base + Visits	Base + Visits2
2012	1.63 [1.39, 1.91]	1.82 [1.54, 2.14]	1.19 [1, 1.4]
2013	1.8 [1.6, 2.02]	2.22 [1.96, 2.52]	1.35 [1.19, 1.53]
2014	1.97 [1.72, 2.27]	1.98 [1.72, 2.28]	1.48 [1.28, 1.72]
2015	2.4 [2.05, 2.81]	2.4 [2.05, 2.81]	1.81 [1.53, 2.13]
2016	2.53 [2.17, 2.95]	2.81 [2.4, 3.29]	1.98 [1.69, 2.33]
2017	2.84 [2.31, 3.49]	2.84 [2.31, 3.5]	2.21 [1.79, 2.73]
2018	2.09 [1.71, 2.54]	2.09 [1.71, 2.55]	1.68 [1.37, 2.06]
2019	2.36 [1.53, 3.68]	2.36 [1.53, 3.68]	2.02 [1.3, 3.17]
All Years	1.99 [1.87, 2.12]	2.39 [2.23, 2.55]	1.57 [1.47, 1.69]

Table. 1.2. Race and FWA outcomes, 2012-2019, GEMS, Reduced PCNS

Year	Base	Base + Visits	Base + Visits2
2013	4.01 [2.46, 6.65]	3.98 [2.44, 6.6]	4.08 [2.5, 6.8]
2014	3.48 [1.99, 6.21]	3.49 [1.99, 6.23]	3.57 [2.04, 6.4]
2015	8.13 [4.72, 14.87]	8.16 [4.73, 14.94]	8.03 [4.65, 14.74]
2016	4.21 [3.4, 5.22]	4.23 [3.42, 5.25]	4.43 [3.56, 5.53]
2017	3.22 [2.7, 3.84]	3.22 [2.7, 3.84]	3.19 [2.67, 3.83]
2018	2.69 [2.32, 3.11]	2.69 [2.33, 3.12]	2.68 [2.31, 3.12]
2019	3.05 [2.42, 3.87]	3.08 [2.44, 3.91]	3.01 [2.38, 3.83]
All Years	3.21 [2.95, 3.5]	3.21 [2.95, 3.5]	3.37 [3.07, 3.71]

Table. 1.3. Race and FWA outcomes, 2012-2019, MedScheme, All PCNS

Year	Base	Base + Visits	Base + Visits2
2013	4.13 [2.49, 7.04]	4.1 [2.47, 6.98]	3.96 [2.38, 6.77]
2014	3.4 [1.93, 6.14]	3.41 [1.93, 6.16]	3.2 [1.81, 5.79]
2015	7.55 [4.38, 13.8]	7.57 [4.39, 13.86]	7.12 [4.13, 13.07]
2016	4.33 [3.47, 5.42]	4.35 [3.49, 5.45]	4.23 [3.38, 5.33]
2017	3.48 [2.9, 4.2]	3.49 [2.9, 4.2]	3.31 [2.74, 4.01]
2018	2.99 [2.56, 3.49]	2.99 [2.56, 3.5]	2.85 [2.43, 3.34]
2019	3.07 [2.42, 3.92]	3.1 [2.44, 3.96]	2.88 [2.26, 3.69]
All Years	3.41 [3.12, 3.73]	3.41 [3.12, 3.73]	3.38 [3.06, 3.73]

Table. 1.4. Race and FWA outcomes, 2012-2019, MedScheme, Reduced PCNS

Year	Base	Base + Visits	Base + Visits2
2012	1.11 [1.01, 1.22]	1.24 [1.13, 1.36]	1.49 [1.34, 1.64]
2013	1.15 [1.05, 1.26]	1.3 [1.18, 1.43]	1.54 [1.39, 1.7]
2014	1.23 [1.13, 1.34]	1.39 [1.28, 1.52]	1.75 [1.6, 1.92]
2015	1.42 [1.3, 1.54]	1.56 [1.44, 1.7]	1.96 [1.79, 2.14]
2016	1.29 [1.19, 1.4]	1.44 [1.32, 1.56]	1.66 [1.52, 1.82]
2017	1.53 [1.42, 1.65]	1.89 [1.75, 2.05]	1.91 [1.76, 2.07]
2018	1.22 [1.13, 1.32]	1.52 [1.41, 1.64]	1.53 [1.41, 1.66]
2019	1.08 [0.98, 1.2]	1.4 [1.25, 1.55]	1.36 [1.22, 1.51]
All Years	1.37 [1.33, 1.42]	1.73 [1.67, 1.79]	2.23 [2.13, 2.34]

Table. 1.5. Race and FWA outcomes, 2012-2019, Discovery, All PCNS

Year	Base	Base + Visits	Base + Visits2
2012	1.2 [1.09, 1.32]	1.28 [1.16, 1.41]	1.53 [1.38, 1.7]
2013	1.26 [1.15, 1.39]	1.36 [1.24, 1.5]	1.61 [1.45, 1.79]
2014	1.36 [1.25, 1.48]	1.5 [1.38, 1.64]	1.85 [1.68, 2.03]
2015	1.51 [1.38, 1.64]	1.62 [1.49, 1.77]	1.99 [1.82, 2.19]
2016	1.43 [1.31, 1.56]	1.58 [1.44, 1.72]	1.78 [1.62, 1.95]
2017	1.78 [1.64, 1.92]	2.09 [1.92, 2.26]	2.12 [1.94, 2.31]
2018	1.38 [1.27, 1.49]	1.63 [1.5, 1.76]	1.64 [1.51, 1.79]
2019	1.26 [1.13, 1.4]	1.51 [1.35, 1.69]	1.48 [1.32, 1.65]
All Years	1.48 [1.43, 1.52]	1.8 [1.74, 1.87]	2.34 [2.23, 2.46]

Table. 1.6. Race and FWA outcomes, 2012-2019, Discovery, Reduced PCNS