SECTION 59 INVESTIGATION

Minutes of the Inquiry

Date	Tuesday, 19 November 2019
Time	11:00
Location	420 Witch-Hazel, Block A, Eco Glades
Chairman	Adv. T. Ngcukaitobi

Agenda Subject	Discussion
I. Call to order	Chair Adv. Ngcukaitobi called the inquiry to order at 11:00 AM. He explained that the reason for starting the inquiry an hour later was due to the fact that he was delayed in Namibia and could not return to SA on time because his flight was cancelled as a result of the ongoing strikes by the SAA employees.
II. Statement Declaration	Chair pointed out that there was a statement that he had to read before Dr. Kimmie could start with his presentation. He highlighted that the statement was as a result of the queries received from one of the schemes. Furthermore, he noted a copy of this statement would be available to whoever would desire to have one. The statement read in this manner: 1) Today the Panel will be hearing evidence from the expert appointed by the panel, Dr. Zaid Kimmie. Dr. Kimmie has submitted a detailed written report to the Panel. A copy of this written report will not be made public until the schemes and administrators have had an opportunity to comment. 2) We note that we have received correspondence from Discovery Health (on 12 November 2019) regarding Dr. Kimmie's testimony — requesting that Discovery would be granted the opportunity to comment on his report and check his facts before he reaches any conclusions or preliminary findings. We considered this request and have decided not to accede to it. In the interest of fairness and transparency, Dr. Kimmie should be allowed to present his evidence on the basis of the process he, the Panel and the relevant administrators and schemes have followed so far. Most importantly, the relevant administrators and schemes will have an opportunity to comment o (or challenge) his findings and evidence when they make their presentations and give their evidence early next year. 3) The Panel will make available to Discovery Health, GEMS and Medscheme a complete copy of the report containing Dr. Kimmie's reasonings and findings as well as other models and data sets relevant to each scheme and administrator. This will give the schemes and administrators a full and fair opportunity to comment. They will also have access to today's transcript and the accompanying PowerPoint presentation.

		4) Additionally, Discovery, GEMS, and Medscheme have made various claims of confidentiality over information that they have provided. We have asked Dr. Kimmie not to include this in his presentation and PowerPoint slides. We are accordingly respecting the request for confidentiality in this session, but will be engaging with Discovery, GEMS, and Medscheme regarding this information so that transparency in this investigation is ensured. 5) Finally, we note that we do not want this investigation to be delayed. It is important that the parties involved in the investigation continue to cooperate in a pragmatic way — allowing it to be concluded early next year. The intention is to have one more hearing in late January or early February where the schemes and administrators will be given an opportunity to present their evidence and be heard. Thereafter the Panel hopes to write its report. **19 November 2019** **<u>The Investigation Panel</u>**
III.	Dr. Kimmie's affirmation	Chair asked if Dr. Kimmie would want to take an oath or affirmation, and he noted that he preferred the affirmation.
IV.	Dr. Zaid Kimmie's presentation	**<u>Background information about Dr. Zaid Kimmie:</u>** Chair asked if Dr. Kimmie would start with giving a brief outline of his background and expertise and state what it was that made him an expert. In response to this, Dr. Kimmie stated that he has a PhD in Mathematics from the University of Cape Town, and has undergraduate studies in statistics and economics. He also mentioned that he completed his Masters degree in Public Health at Harvard University where he majored in Bio-statistics, epidemiology and the Design and analysis of experimental data. Furthermore, he noted that he had worked as a Statistician with the Council of Scientific and Industrial Research for 6 years. He also mentioned that he had worked in the Social Research Sector as a Researcher focusing on the analysis of quantitative data. Chair then asked Dr. Kimmie what the area of his expertise was. Dr. Kimmie responded stating that his area of expertise is statistics, mathematical marking and the analysis of survey data. Chair also asked Dr. Kimmie if he had done any reports that were similar to the one he was to give or present to the Panel. Dr. Kimmie stated that he had done data analysis for financial institutions which are very similar to this one and also had done over 50 reports on a range of data for instance election data. Adv. Ngcukaitobi then asked Dr. Kimmie how long he had been in the profession for. Dr. Kimmie's response was that he had been in the profession for about 25 years.
		Scope of Report **<u>Questions Dr. Kimmie was tasked by the Inquiry Panel to answer:</u>** In reference to Dr. Kimmie's presentation, Chair asked him to give an explanation for the academic literature and the approach taken. In response to this, Dr. Kimmie stated he would first start by taking a step back and make reference to the two questions that the Panel had asked him to answer. These questions were:

	1. Is there an explicit racial bias in the algorithms and methods used to identify (Fraud, Waste and Abuse) FWA? 2. Are the outcomes of the FWA process racially biased? In particular, were Black providers identified as having committed FWA at a higher than expected rate? Dr. Kimmie pointed out that he answered the first question by reviewing the submissions, methods and approaches employed by the relevant parties and by observing demonstrations of how these systems worked and the kind of outcomes they produced. He noted that he attended sessions with these schemes (Discovery Health, GEMS, and Medscheme) where they would demonstrate how their systems worked. Adv. Hassim asked if these sessions were held at the schemes' premises respectively. Dr. Kimmie noted and confirmed that the sessions were held at the schemes' premises. Adv. Hassim then asked Dr. Kimmie if he would take them through the steps he followed and the engagements he had with the parties in order for him to be able to acquire the data. Dr. Kimmie explained that he met up with the said parties who had previously made submissions to the Panel. The demonstrations occurred in a live manner, someone would log into their system and then show him how their system works. He would then have discussions with the parties where they discuss what algorithms were being used, how the decisions were made in relation to investigations. He was able to see what data the systems used in the process or input. Dr. Kimmie emphatically stated that based on the observations of the applications and algorithms, there was no explicit racial bias.
	Dr. Kimmie's Findings As Dr. Kimmie had explained that after attending and reviewing demonstrations of each system used by the three parties involved, he noted that the application of the system varied substantially between them and that the algorithm was not utilized by two of them. He expressed his conviction based on his findings that there was no explicit racial bias in the systems based on the algorithms and systems used. He further supported this by stating that the data that was fed into the systems were merely practice numbers, more commonly known as PCNS. He added further, that the analysis was not based on geographical data or any other variables indicating race but solely on PCNS. Therefore, he concluded that there was no explicit racial bias included in the application or implementation of the system. Adv. Williams asked Dr. Kimmie to clarify his statement, as it seemed rather broad, especially referring to his usage of the term "explicit." Dr. Kimmie qualified that there was no indicator or variable that indicator whether a provider was black or not. He then stated that this didn't mean that any of the factors used or their implementation thereof, were race blind which was part of the outcomes rather than the process.

	Adv. Ngcukaitobi asked Dr. Kimmie to state the process that was followed. Dr. Kimmie's answer was that the detailed description of the systems provided by each party, even in cases where the precise detail was proprietary and this was demonstrated to him. The only data that was used was codes and claims made. There was then a risk score that would be worked out through the operational system. Adv. Williams then asked how the output was dealt with. Dr. Kimmie explained that the output is a score with a higher score meaning a higher probability of deviation from normal behavior and large deviations were a sign of irregular behavior. He also noted the score was merely an input into an investigation and not the final determinant. These scores were not accumulated on a single factor but there were many factors involved. Chair asked Dr. Kimmie to explain what really happened between the decision to investigate and the risk score because it seemed like there was a human factor in that process. Dr. Kimmie stated that the important thing to note about the systems was that they were resource made. There is no particular score that is a factor that qualifies a provider for an investigation but there is an intent to investigate as much as possible. He then explained that tip-offs and hotlines were given first investigative priority. He then concluded this by explaining that the final decision to investigate is based on a combination of the risk score and a sound business decision (never automated) of which stated the importance of noting that the capacity to investigate was often the limiting factor. The decision to investigate would be based on the business decision with reference to higher financial consequences. With reference to this, Chair asked Dr. Kim to explain how a scheme decided to focus and invest resources into a particular discipline for instance Psychiatry when it appeared to be high risk. Dr. Kimmie stated that in this instance it would be based on identifying a particular behavior like hospitalization for respiratory disease, normal hospitalization would be one day but it may appear that a large number of people are being hospitalized for 3-5 days, which then stands out as a potential risk. It would then be observed as to which provider would be doing this and in what discipline. This would be an actuarial alert. Furthermore, he stated that in other cases it might be determined by a clinical concern like having a heightened number of people treated for a heart disease within an area. All these factors would then lead to the decision to focus on the behavior and then lead to investigations. Adv. Hassim followed up by asking Dr. Kimmie what percentage of investigations was a result of tipoffs and hotlines. To which he responded by giving a guess of 50% due to the them being given first priority. In some cases, there would be a business decision that all cases should be investigated. Basically, all of the tip-offs would be investigated. Chair interjected and asked the decision to investigate as actually taken. Dr. Kimmie pointed out that he wasn't sure but would focus his response on his experience with one of the schemes where a Risk Committee would be guided by the actuary input where a potential risk would be identified and would be analyzed to determine how

	much financial risk it would have if were to be left unattended. This would lead to the investigation process. Adv. Williams interjected and asked if that was what Dr. Kimmie meant by team scenario where the team would make a decision. He responded in agreement to this. Adv. Williams also asked him to clarify the three schemes and administrators that he had been referring to. In response to this, Dr. Kimmie explained that Discovery Health is an administrator, Medscheme is an administrator too that administers schemes like Bonitas. On the other hand, GEMS is a scheme not an administrator and has contracted Metropolitan Health as its administrator. Chair asked whether the system used by schemes was designed to suppress race. Dr. Kimmie answered and said that all of the parties stated that they were unaware of this. The information that was given to him did not in anyway contain racial indication. **Methodology** Adv. Hassim moved on to the second topic of interest which was the methodology of the conducted research and how he got to his findings to answer the first question. Dr. Kimmie launched into a detailed explanation in which he stated that primarily homogenous countries have used this system too to construct 90% accurate classification databases with surnames. Even in South Africa race can be inferred based on a person's name or area of residence, there were no published cases using such methods. This fact made the PCNS method and data base more appealing in a sense as no race-based data was involved as referenced from Fiscella and Fremont (2006). The information included in this is name, surname and practice number and no information on race. Dr. Kimmie then noted that the question to ask was whether or not one could use surnames to classify race. He then emphatically stated that it was possible, especially in such instances where data does not indicate the race. The U.S. Statistics Bureau has used surnames to classify and identify Hispanics in their research and has been accurate most of the time. He stated that he hadn't found literature where this was used in South Africa but has heard that there were instances. Adv. Hassim asked Dr. Kimmie what the size of the population was with regards to the providers. Dr. Kimmie then stated that the size of the PCNS was approximately 150 000 practitioners, of which 30000 of the names were distinctive and only 77000 members (duplicate surnames included) were active between 2012-2019 with outcomes classified as "black" and "non-black" (default classification). He also stated that this excludes the usage of first names.

He also noted that there are questions about how accurate this was. He mentioned that this could be looked through considering homogeneity and distinct naming conventions and a deleting process.

Dr. Kimmie repeated that the process was not error-free and that black practitioners had been significantly underestimated. He also added that a conservative approach that involved deleting names that were obviously black, could be taken.

He then provided links to publicly available databases of African, Arabic and Indian names.

According to Dr. Kimmie's findings, potential pitfalls to avoid included differential misclassification and no contamination of classification procedure with FWA sets.

He then went on to present tables with values from the three parties in question, namely Discovery Health, GEMS and Medscheme.

Tables were of data of race and FWA outcomes from 2012 to June 2019. He then explained the Risk rate which decided whether or not there was a bias but did not define that there was an actual bias. He achieved this calculation by dividing FWA by the total in each row.

- 65, 280 unique providers (as measured by PCNS numbers paid by these parties.
- 16, 453 providers (25.2 %) identified as FWA cases by at least one party in at least one year during this period.
- 19.903 (30,4%) of all providers are Black.

FWA	Not FWA	Total
Black: 6, 314	13, 589	19, 903
Not Black: 10, 139	35, 238	45, 377
Total: 16, 453	48, 827	65, 280

- Risk rate (Black)
  6314/19903= 0, 317= 31, 7%
- Risk rate (Not Black)
  10139/45377= 0, 223= 22,3 %
- Risk rate (Population)
  16453/65280= 0, 252= 25, 2%

- Risk ratio
  Compare risk rate for Black to Not Black and then divide both with each other (31,7/22,3= 1.42)
  This means that Black providers are 1.42 times more likely to be identified as FWA case than Not Black providers.

	Dr. Kimmie followed up by explaining the P-value which he stated was largely misunderstood even by practitioners. He stated that the smaller the p-value, the greater the statistical incompatibility of the data with the null hypothesis. He then went on to report (based on the calculations) that strong racial bias existed with respect to FWA outcomes with black practitioners having a 40% likelihood of being identified as FWA cases than their non-black counterparts. Keeping in mind that cases appear only once regardless of how many times or years they appeared on the list and then went on to explain tables he had prepared including all three parties involved as well as a list of all medical specializations with the Risk Ratio's and P-values calculated. It was stated by Adv. Hassim that only one entity made their algorithm public while the other two have opted to keep it confidential.
V.	**Alternative Measure of Effect** Dr. Kimmie mentioned that there was an alternative measure of effect available and that it could either be used as a replacement for, or a combination with the Risk ratio. Furthermore, it could estimate the increased number of Black FWA cases that were a result of the racial bias. He then stated that over the 7.5 years, approximately 1,300 additional Black FWA cases had occurred. **One Additional Finding** Dr. Kimmie then pointed to an additional finding that he had come up with. He stated that over the period 2012-June 2019, Black providers were 400% (a risk ratio of 4, p-value= 8e-71) more likely to be investigated by all three parties than their Not Black counterparts. The population risk is relatively low (1% 618 cases) but not low enough to be meaningless.
VI.	At 12:55 pm Chair announced that the inquiry would adjourn for a break to return at 1:55 pm

Adjournment: Adjourned at 12:55 a.m. to return at 1:55 p.m.

Second Session

Date	Tuesday, 19 November 2019
Time	11:00
Location	420 Witch-Hazel, Block A, Eco Glades
Chairman	Adv. T. Ngcukaitobi

Agenda subject	Discussion

I.	**Caveats and Questions** Dr. Kimmie pointed out that the important questions that come are what he meant by the fact that we have evidence of racial bias. To answer this question, he pointed out to the following: • This bias is meaningful with respect to the racial assignment scheme. • This racial bias represented a correlation between our race classifier and FWA status. No claim was made about causality. It might have been that the relationship was clarified by some intermediate confounding variable, and that the casual relationship is between that variable and outcome. • We could only infer that this bias (as measured by indicators) exists with respect to actual race classification by assessing the robustness with respect to the racial classification scheme. Another question was how robust the result was. In response to this Dr. Kimmie stated the following: • There were two ways in which this could be tested: we could revert to the more restrictive racial classification produced only by reference to external lists of Black names (I.e. the classification is completely independent of the PCNS data). • The results would then be as follows: Risk ratio= 1,38; P-Value= 2e-83; Population Risk= 25%. • There would only be a marginal difference in the Risk ratio so the result would hold even if a more restricted racial classification method was to be used. • The second method would involve testing what the effect would be of classification error in our method. We could do this, for example, by randomly classifying 5% of the Black providers as Not Black, and if we did these several thousand times we would find that the average Risk ratio would be 1,36, with an average P-Value of 2e-101. • An even larger perturbation of the classification (15% of Black to Not Black, and 15% Not Black to Black) would still result in an average risk ratio of 1,26 with a P-value of 3e-56. • It would therefore be unlikely that the main result would be due to measurement or classification error. Another question was whether or not the results could be reproduced, of which the answer was yes, regardless of variation because classification is independent of PCNS data. Furthermore, Dr. Kimmie pointed out that there would be some choices that would have to be made and these would introduce some variations, and we would still end up with a very similar product.
II.	**Conclusions Drawn from Dr. Kimmie's Findings** • There was no evidence of explicit racial profiling in the design or implementation of systems used to identify potential FWA cases by Discovery Health, GEMS or Medscheme. • There was clear and strong evidence of racial bias with respect to the outcome of FWA processes as implemented by the parties in question.

	• This bias was not restricted to only a limited time period, nor was it located within only particular disciplines. The bias may vary in scale across these factors, but was widespread and consistent. • Dr. Kimmie had carefully examined the assumptions that underpin these findings and convinced that the results were robust. The conclusions reached from Dr. Kimmie's findings were that FWA outcomes from each provider exhibited clear racial bias,
III.	**Closing Remarks** Chair thanked Dr. Kimmie and noted again that the representatives from each party would be given a chance to go over the findings and respond with their own presentations and findings next year on dates that will be communicated at a later stage.
IV. Other business	**None**