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Preventing fraud and providing services: The private healthcare insurance sector

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# Preventing fraud and providing services

## The Private Healthcare Insurance Sector

Peter Stiernstedt<sup>1</sup> and Graham Brooks<sup>1</sup>

### **Abstract 100-150**

The private healthcare insurance sector is rarely the subject of criminological analysis unless seen as corrupt. It is even more unusual that it is the subject of analysis as a victim of fraud. This paper is thus different in that it establishes a picture of international private healthcare insurance sectors approach in preventing fraud and providing healthcare services. We start by explaining why the private health insurance markets exist. This is followed by the methods employed to secure innovative data from the private health insurance sector. The results of the research conducted in collaboration with the International Federation of Health Plans are then presented. A discussion on key aspects of this research is then examined before we lastly, consider a way forward and the development of fraud resilience in the private insurance healthcare market.

**Key words (5): Fraud, Healthcare, Insurance, Prevention, Technology**

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## Introduction

Healthcare fraud is a global problem (Banerjee, Deaton, and Duo, 2004; Banerjee, Duflo and Glennerster, 2007; Chaudhury et al., 2006; Francis, 2010; Gill and Randall, 2015; Hunt, 2007). The World Health Organization's estimate of annual global healthcare expenditure was \$6.5 trillion in 2012<sup>2</sup> (WHO, 2012). It is further estimated that the global spend on healthcare will be \$10.1 trillion by 2022 (Deloitte, 2018). Each year, 7.3% of that total (Gee, Button and Brooks, 2011), or an estimated \$470 billion in 2012 and \$740 in 2022, is lost to healthcare fraud and error. According to the 2016 report of the Association of Certified Fraud Examiners the health sector is fifth on the list of sectors mostly affected by fraud (ACFE, 2016).

In 2004 the European Healthcare Fraud and Corruption Network (EHFCN) declaration called for a common standard of risk measurement to reduce losses to fraud and corruption throughout the EU (EHFCN, 2018). The research underpinning this paper had a similar intent but with a global coverage and was focussed at a number of private healthcare insurance providers. This is a first step towards an increased understanding of not only the threats and issues surrounding fraud in the sector but also of best practices. Those practices include a mapping of payment integrity activities, the governing processes, and the people within that process and to some extent the technology used to facilitate this process.

This paper will begin by describing the private health insurance [PHI] sector in an effort to provide an outline of *why* the PHI market exists rather than *how* it is provided. In doing so we first define what is understood as the PHI, which is not a simplistic division between public and private insurance. Then we will present the results of a ground-breaking survey conducted in collaboration with the International Federation of Health Plans [iFHP]. The analysis reveals a number of topical, interesting and useful insights. Lastly, we consider a way forward together with some concluding thoughts about how the private health insurance sector could develop in terms of fraud resilience.

The findings in this paper reflect the contemporary preventive approach to tackling fraud across a global spread of PHI providers and consider the areas of contention, disparity in approach and potential concerns common to all, noting that more must be done to address the issue. Particularly there are indications of large variations in counter-fraud measures which suggest a potent and immediate need for well-established benchmarks. As has been argued before, fighting fraud, irrespective of public or private sector, is not only a moral imperative but will also have a demonstrable economic impact if undertaken coherently and systematically (Stiernstedt, 2016).

## The Private Health Insurance sector

Private health insurance may seem to be an obvious and straightforward service provision capable of a simple definition. Every country in the European Union allows PHI to be sold alongside statutory health insurance, yet there is a substantial difference in the role PHI

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<sup>2</sup> Figures used on this factsheet are based on 2010 data. Note that increases in US\$ expenditure levels partially result from recent variations in US\$ exchange rates. For more data and indicators on health expenditure, please visit the Global Health Expenditure Database (GHED)

plays within a country, the health system itself, and also the size and function of different health insurance markets (Mossialos, and McKee, 2002; Thomson, Foubister, and Mossialos, 2009). Moving beyond the EU PHI plays a role in healthcare Australia and Canada, Brazil, Chile, South Africa and the USA (EHFCN, 2019). The coverage, however, is diverse rather than a monolith 'one size fits all' approach. This diversity makes it difficult to define what is meant by PHI. An acceptable but still contested view is that PHI is insurance secured voluntarily and paid for by private funds, either by individuals or employers for employees (Thomson and Mossialos, 2006) or as 'access to care with financial risk protection' (Sekhri, Savedoff and Thripathi, 2005:3). These definitions recognise that PHI is sold by a wide range of organizations - public and private – via statutory 'sickness funds', a non-profit mutual or a provident association and commercial for-profit insurance organisations.

The level and reach of PHI, however, often reflects a nations' attitude toward welfare and the poorest in its country, with theoretical analysis often presented as empirical fact in the debate on healthcare. Instead of engaging in such a debate here, which is not the aim of the paper, it is critical to consider broad theoretical explanations in favour of PHI so we can understand *why* nations have a form of PHI. In this paper we take PHI to be health insurance that is provided independently of a National Health Service.

Those in favour of PHI often highlight the inequity and inefficiency inherent in a state bureaucracy, the absence of appropriate 'financial' incentives and state failure to raise sufficient revenue to fund the costs of public health care (see e.g. Colombo and Tapay, 2004). PHI can potentially address these limitations in three ways. First, the profit motive and competition have the potential to lead to efficient administration (in this sense low costs and speed of treatment), plus innovation, and advanced quality of care. Second, PHI mobilises additional resources for health care, which reduces pressure on public healthcare funds. Third, PHI can establish pre-payment for services, and also pool financial risks (Thomson, Foubister, and Mossialos, 2009) to protect PHI businesses. This is one of the major differences between public and private insurance; public insurance is via taxation or social security payments whilst private healthcare is via direct payment to an insurance company. The boundary between the public and private sector, however, has become increasingly blurred with enrolment of people on either or a combination of mandatory and voluntary schemes, guaranteeing care via contributions that are based on risk, coverage of a community of people (transfer between healthy and sick) or income (transfer between income brackets), which is based on the organisational structure of provision such as commercial for profit or non-profit sectors (Sekhri, Savedoff and Thripathi, 2005).

However, seen as a process, PHI will only result in an optimally efficient allocation of health care resources if certain assumptions hold. Markets for health insurance - or more accurately, markets in which health insurance is voluntary - are characterised by a number of failures such as complex policy documentation, misleading information, and/or corrupt abuse of the PHI market (Savedoff and Hussmann, 2006. Holmberg and Rothstein, 2010, Busch, 2012, Jain, Nundydean and Abbas, 2014). In the latter case a company will eventually be closed down by a state regulatory body or implode because of rampant corruption (Brooks, 2016; Heywood, 2015; Johnston, 2005). Consequently, PHI will only work efficiently if there are no major problems with adverse selection, moral hazard and monopoly.

Moral hazard (Sekhri, Savedoff and Thripathi, 2005) and monopoly issues are a problem for

statutory and voluntary health insurance. The main problem specific to voluntary health insurance is covering people who are already ill or at high risk of health care costs. Insurance organizations want to avoid such patients or offer insurance but at a cost only a minority can afford. This leads to risk selection and market segmentation. As a result, some people are unable to secure private healthcare coverage, or coverage at a price that individuals and/or a family can afford. Furthermore, an insurance company will maintain profit margins by selecting risks rather than through efficiency savings and purchasing services and administration alone. Public policy can address these issues though, through direct intervention in the market (regulation) and indirect i.e. tax policy (Mabbett, 2000) with the PHI sector part of healthcare policy around the world. Predicting individuals' exposure and future risks to health issues are perhaps possible at a local level but at the state level highly problematic. Yet state level exposure of healthcare issues is predictable (e.g., knowledge of an aging population). This should result in some control of costs or ability to account for health insurance regardless of the type of provision.

The distinction between voluntary and statutory coverage, however, is important. Many of the market failures associated with health insurance occur (or at least more liable to occur) where coverage is voluntary (Barr, 1998, 2004). In practice, it is not always useful trying to rigidly define PHI. Referring back to the definition used here it is not always clear what "independent to national health service" translates to in reality. For example, in 2006 the Netherlands introduced a universal health insurance scheme that is statutory (it is compulsory for all residents and regulated by the state) and private (since it is managed by private insurance market and administered and underpinned by private law). PHI is therefore a complex market not always portrayed by a clear-cut distinction between public and private insurance (Thomson, Foubister, and Mossialos, 2009).

Within this complex market PHI fraud, abuse, waste and error is a challenging problem; its economic effects are clear and undermine the capacity of organisations to deliver the sort of quality services that are expected and required (Mackey and Liang, 2012). The survey results presented here are based on the iFHP 2018 FAWWE Resilience Report developed in collaboration with the University of West London. Its purpose was to evaluate a range of indicators in the insurance healthcare sector regarding fraud, abuse, waste and error - the areas which form the acronym FAWWE. These indicators are thought to help PHI providers to understand current and future threats and issues that need to be addressed in this market. It is the first report of this type undertaken and with it the IFHP has produced a snapshot of current practice in preventing and recovering funds lost to fraud, abuse, waste and error, in the healthcare insurance sector.

### **Methodological overview**

In order to understand fraud resilience, one must first as accurately as possible measure fraud. As repeatedly highlighted by Gee and Button (2013, 2014, 2015, 2017, 2018) this is possible yet not always done (Brooks, 2016; Levi and Burrows, 2008; Stiernstedt, 2016; Tombs 2009; Urra, 2007). Partly due to the inherent difficulties of creating a universally understood definition of fraud (see e.g. Rossouw, 2000). Further, the PHI sector tends to further breakdown losses into four different categories; fraud, abuse, waste and error. Table 1 describes the definitions used for this particular research.

Table 1. Definitions of key concepts.

Concept	Definition
<b>Fraud</b>	A <b>deliberate</b> attempt to deceive an entity (individual or organisation) to secure a financial benefit now or in the future.
<b>Abuse</b>	A medically <b>un-justifiable</b> treatment.
<b>Waste</b>	A medically <b>justifiable</b> but unnecessary and/or excessive treatment.
<b>Error</b>	An <b>unintended</b> human and/or systemic innocent misrepresentation with no malicious intent

It should be noted however, that these definitions were developed specifically for this project, and that there were (and to some extent still possibly are) different interpretations of the various concepts also between the participating organisations. The reasons for this include organisations operating within different regulatory frameworks and applying tools and technology that also have a normative influence on definitions. Nevertheless, none of the definitions were competing and since the definitions above were intentionally broad there was general consensus in the interpretations by participants. The feedback from the survey, however, did show a desire for further elaboration and subsequent sector-wide acceptance of common definitions of these key concepts.

From establishing definitions, the next step would be to devise and implement various measures to counter the identified vulnerabilities. This too is being done, but often somewhat arbitrarily and not always by means which are research and evidence based (Stowell, Schmidh and Wadlinger, 2018). This is also clear from the survey results showing a multitude of approaches taken by PHI providers, and while all arguably have a vested interest to counter and reduce fraud there is need for both a wider and deeper understanding of how fraud is addressed. It is therefore in the interests of an organization like the iFHP to address this problem on a large scale that results in real-world data and applications that could benefit and advance the fight against fraud in the sector.

To that end a survey was distributed in late 2018 to five (5) member organisations of the iFHP. The survey collected data under the four categories; organisation, people, investment and technology. The discussion in this article draws upon data from all four categories with an emphasis on creating an understandable picture of the approach to payment integrity activities, the process governing the FAWE-related issues, the people within that process, and, to some extent, the technology used to facilitate this process. The results of the survey represent the data submitted by each of the five organisations. Given the sample size and variance in answer data density (i.e. the amount, detail and relevance of information provided in an answer), the limits of measurement quality must be acknowledged. In short, measurement quality refers to the strength of the relationship between the concepts that are of interest and the observed answer. As a result, exact calculations and values on variance and standard deviation are not explicitly stated but rather qualitatively indicated

when appropriate as low or high.

Where data is absent this is highlighted in the report by indicating the number of organisations that responded and/or fail to respond. It is worth noting that not all questions were categorically answered nor were the answers delivered in the same format. This goes beyond the factual content and numerical values of a question to the possibility of respondents interpreting and thus answering in qualitatively different ways. To a degree this was anticipated, and some questions were deliberately left open to allow for such interpretation and data rich individualised answers to be provided. Nevertheless, these are important considerations if taking this survey forward in a large-scale analysis.

When analysing the survey results there are first some general observations made, followed by some more specifically related to the approach to PIA, the governing processes, the people and the technological systems.

### **Research findings**

The numbers of lives covered nationally by the five organisations surveyed range from about 0.8 to almost 4 million with the total number of lives covered about 8.7 million. All five organisations conduct various Payment Integrity Activities [PIA]. The PIA occurs both pre- and post-payment and is executed both internally and by third party external resources. All organisations target hospital, medical, ancillary, members/customers claim lines. Four organisations target staff/employees claim lines and one organisation has outsourced this type of claim. Only three organisations target third party claim lines. The average annual total paid out claims recovered for 2016-2018 for fraud is 1%, abuse 17.5%, waste 60.5 %, and error 21%. The percentage of PIA pre and post payment is: pre-payment ranges from 15-80 % across all organisations and post payment 20-85 %. It is noted that changes to these ratios are currently under assessment and subject to change. Currently only one organisation has a pre-payment PIA above 50 % but there seems to be a movement towards an emphasis on pre-payment PIA. According to the analysis there are, however, no clear criteria or routes that lead to investigation, yet another point that merits additional consideration. Nevertheless, the organisations report a substantial return on investment from units claim lines. Calculated averages per lives covered thus are: Monies recovered – 11.7 million USD, Payment declined – 12.8 million USD, and Attributed savings – 4.8 million USD. Further, as a result of PIA, all organisations claim an annual year on year increase of recoveries. The average benefit of savings from PIA and the percentage of claims pay-outs recovered annually are 1.7% and 2.3% respectively.

It is from these figures that we now turn our attention to a more specific analysis of the approach to PIA, the governing processes, the people and the technological systems. What follows is a more detailed presentation of the findings and some deductions on what this may mean for the PHI overall. This is a negative analysis in the sense that it focuses on items identified as not working, or that could work better.

At first glance the approach to PIA may seem somewhat similar, at least when considering what it aims to achieve – reduced loss. The location of the actual PIA department, however, varies but it is not clear if this has major impact on its efficiency. Recalling the tendency for risk selection and market segmentation the variation in organisation may be a reflection

thereof. More significant, however, is the variation in the ration split of PIA undertaken pre and post-payment of claims. Literature on countering fraud for competitive advantage (Button and Gee, 2013) would suggest that a preventive approach is preferred to a more reactive one. While this seems to be the trend there are still rather large variations where the organisations report diametric ratios, one doing 80/20 pre/post activities and another reporting 20/80. The survey responses do indicate that there seems to be recognition of prevention over reaction. Nonetheless, given the stark differences, any such change in approach is value added by these findings as an illustration of the size of discrepancies and best-practice benchmarks.

Turning to the governing processes, whose full potential arguably is partly obstructed by the lack of clear and universally adopted definitions of fraud, abuse, waste and error. This, however, is not unique to the PHI sector and similar difficulties can be seen in for example the fight against corruption (Brooks, 2016; Gardiner, 2002; Heywood, 2015; Graycar and Prenzler, 2013). Analogous to empirical evaluations of anti-corruption efforts, that sometimes at surface level suffer inexplicable failure (see e.g. Marquette and Peiffer, 2015; Persson, Rothstein and Teorell, 2013), so could the Fawe-resilience of PHI organisations. An indication is the apparent lack of clear and transferable criteria across the different organisations of what it is that leads to investigating a claim. This does not mean that each organisation is not reporting any criteria, they are, but there is little consistency between them and perhaps more importantly the criteria are not always based on empirical evidence. This deduction is further strengthened when examining the number of currently open investigations where there is a large variance between organisations for no obvious reasons. Further data collection and analysis may reveal a less obvious reason but no correlation between any of the available indicators were found here.

Also, when looking at the distribution of dedicated employees' contra the number of currently open investigations there are significant differences. Whether these pertain to variations in definitions, investigation criteria, or something else remains to be seen. Nevertheless, the average caseload for each dedicated employee is 122 cases per year. A dedicated employee is defined as one that works primarily with Fawe-related tasks. The key roles of those people in terms of competencies, in no order of significance, are: health information management, nursing, coding, law enforcement and claims management. Note that several organisations combine more than one of the various competencies in the same person. The survey results also accent the importance of professional qualifications as both relevant and valuable. Thus, given the size (number of employees, turnover etc.), scope (number of lives covered, societal inclusion, etc.) and reach (global coverage, movement of customers, goods and services, etc.) of the of health insurance sector, we suggest it could consider developing a sector specific qualification.

While the analysis of people revealed a number of distinct empirical deductions the opposite can be said about the technological systems. The developments in technologies that facilitate PIA activities also produce risks. An overreliance on technological safeguards may lead to even greater losses that are both harder to detect and more complex to investigate. Further, this also ties into a public policy debate outside the scope of this research where expanding regulation to also include the use of technology may be a possible future for PHI (Erdélyi and Goldsmith, 2018). Nevertheless, all organisations attest to having various software solutions both for analysis and identification as well as



investigation and case management. The organisations thus acknowledge the need for technology-facilitated PIA activities partly as a response to technology-driven fraud vectors. These solutions, however, whether off-the shelf or in-house developed, may not suffice against the risks to which the organisations are exposed. This is especially pertinent if these measures are deployed reactively to address a security breach that has already been exploited. Some respondents allude to machine learning algorithms and AI-type solutions as being the answer.

Indicated in our research the PHI sector deals with past, present and future events concurrently. Some of these risks and threats are constant such as up-coding of treatment. We, however, see up-coding as a type of fraud: to manufacture a claim is fraud; equally to claim for incomplete or non-existent work is also a fraud. These up-coding episodes cut across hospitals, medical, ancillary, members and employees alone or in collusion. Furthermore, noticeable in this research was the PHI sectors concern regarding current threats such as cosmetic surgery presented as medical treatment, with future threats and risks such an increase in psychiatric claims, alternative medicine, and threats from organized crime. To counteract these threats the PHI needs sophisticated payment integrity systems and law enforcement, data analysts, nurses and counter fraud specialists perhaps in excess and/or with enhanced competencies of current employment numbers unearthed in this research.

## **Discussion**

Modern healthcare is underpinned by many scientific triumphs that offer patients quality of life and longevity. In principle, spending on healthcare should occur if clinical benefits outweigh harms and of course, should lead to judicious use of resources - public and private insurance – built on established medical evidence, expertise and medical judgement, and the individualised needs of patients (Ryan, 2017). Health risks, however, are not static; they change as health care issues arise in the course of life. Health care services then are a constant need; from conception to death. Exposure to health risks is not always in the control of the individual though, and medical advances keep changing the definition of health ‘risks’ and the thus the level and type of insurance. All this leads to unpredictability in assessment of some health risks and the subsequent costs (Sekhri, Savedoff and Thirpathi, 2005) for both the public and private sectors. Predicting and controlling costs and losses as much as possible, however, are a key part of PHI provision.

For this to be achieved in the PHI sector PIA systems are of considerable importance. In this research we discovered that whilst these systems are similar in orientation, different systems are employed. Each organisation surveyed in this research made it clear it had a pre/post payment split as part of its process in investigating claims payments. The split allows ‘routine’ treatment and payments to be expedited, particularly with dependable and valued clinics, hospitals and customers. A retrospective post-payment system regardless of the split is problematic though in that it leaves the PHI sector vulnerable to manufactured, and/or inflated claims. Both pre and post payment are subject to types of fraud; up-coding, claim for excessive treatment, cosmetic treatment presented as medical necessity etc. but trying to recover losses post payment is always far more difficult than preventing them in the first place (EHFCN, 2018; Gee, Button and Brooks, 2011; Gill, 1998; Levi and Burrows, 2008)

Regardless of the emphasis on requesting payment before treatment or after treatment PIA systems have to deal with numbers of people and volume of claims on known medical treatment but also 'new' medical services available. These 'new' medical advances and some non-medical services i.e. cosmetic surgery often presented as crucial medical treatment, put pressure on the PHI sector. In addition, there is the overuse of medical health services - such as needless and/or excessive diagnostic tests, prescribing of medications and surgery (Ryan, 2017) that has to be assessed and processed.

In our research we uncovered excessive use, and cosmetic treatment presented as medical treatment. We suggest, more than physicians desire to attend to a patient(s) 'needs' this is possibly a fraud. Excessive applications are unwarranted medical treatment, as is cosmetic surgery, and costs the public and private insurance sector. The analysis of the survey results points towards internal systems helping, to some extent, to prevent fraud, but are only part of the armoury needed to reduce losses to fraud (Sparrow, 1998, 2000; Busch, 2012) as technical systems have limits. A healthcare system checks the claim and the amount that should be dispensed to a healthcare professional, hospital, or individual claimant. Systems primarily correct claim errors and inappropriate procedure, and reject claims if the provider(s), recipient, or procedure is somehow ineligible. This, however, is limited in trying to verify that the healthcare service was provided as claimed, or that the diagnosis is legitimate, or the patient is aware of the supposed treatment. Whilst healthcare systems have advanced in processing claims the 'human touch' is needed to identify 'suspicious' claims that possibly contain deception or misrepresentation.

If the system in place is based on the assumption 'systems select: humans inspect' (Sparrow, 1996) this limits the capacity of a company to reduce its losses to fraud. Furthermore, as private hospitals invest in technology and the science of healthcare claim clinical advances, patients clamour for the latest and most expensive treatment. The most expensive, however, should not be translated into the best treatment. This is a matter for the PHI sector which, as emphasised in this research, sometimes has to manage unrealistic demands and healthcare for patients. All PHI contracts have elements of exclusion in them, which is understandable for private healthcare enterprise. This is not a justification for the PHI market but simply recognition that the private sector needs to make a profit to exist.

Exclusion via contract of some services is one potential avenue to reduce costs but there are also a few other ways for healthcare systems to maintain a sound financial platform under pressure to pay for increasingly expensive treatment. One is to pay for 'coverage with evidence development'. In this approach, insurance/purchasers could pay for an unproven intervention (or an existing intervention for an unproven patient population), only if patients enrol in a randomised controlled trial comparing the new intervention to existing standards of care (Ryan, 2017: 78). As seen in this research, 'new' treatments could be subject to fraud i.e. up-coding/inflated costings, but primarily appear to embolden overuse of such as yet to be proven long-term benefits to patients. A consideration must be placed on 'dynamic pricing'. This is where payment – by state or private insurance – will only pay for interventions if the effects are evidently superior to existing standards of care. Yet again this is no fail-safe system that would prevent fraud, abuse, waste and error, but could reduce unnecessary spending, releasing funds to be used on proven healthcare treatment.

We have known for some time now that healthcare professionals i.e. physicians vary in

treatment practice(s) (klik, Mikkers and Wijnker, 2017). The consequent variation in treatment means that FAWE-related issues are hard to uncover, and thus measure and ultimately prove in the healthcare sector. Treatment for patients is often made under conditions of uncertainty i.e. an illness/disease is suspected, and prevention is preferable to cure, but can lead to waste, but not necessarily fraud. Here, the role of technology is limited, in reducing upfront costs, but if the diagnosis is correct can save funds where a serious disease is prevented from aggressive development. Since a process or procedure can be circumvented to some extent the role of internal professional employees is a significant investment in the PHI market. From this research we discovered that the PHI sector employs a wide range of professional people; such as ex-law enforcement, nurses, computer/systems and data analysts as well as the expected counter fraud specialist. All offer a range of knowledge on the healthcare market and complement the payment integrity systems. If a system highlights a potential problem, or fails to do so, such employees are invaluable in passing judgement and investigating a case if the matter is potentially FAWE-related. If discovered early enough in the payment process, depending on the system used – pre or post-payment – it can be withheld until evidence establishes the claim(s) is authentic.

The use of data analytics in healthcare is also a potential avenue to reduce FAWE-issues, as well as corruption. Data analysis is a useful tool in trying to uncover fraud but can lead to false positives (data indicating potential fraud, but investigation shows none occurred) or false negatives (where data analysis failed to uncover fraud because the data was in-line with what was expected). These mistakes could be based on the quality of data or the mistakes in the data before being put in to a system. Dealing with vast numbers and costs, data analysis can miss the human element, the ability to manipulate the system, and as such data analytics can help direct resources toward potential frauds rather than prove them. In this sense technology is useful, but still limited as indicated above.

However, and worth emphasizing once more, if those determined to commit fraud or abuse become aware of a technical test to detect it, it is possible to alter and adjust the data to avoid suspicion and detection. Small, consistent frauds and abuse that hardly stray from 'expected' payment integrity claims for treatment and care can fail to register on systems that highlight unexpected claims for payment. This 'dripping tap' effect (Gee, Button and Brooks, 2011; Brooks, Button and Gee, 2013; Brooks, Tunley, Button and Gee, 2017) however, is the cause of substantial funds lost to fraud. In this context a potential 'arms race' between data analytics and those out to commit fraud occurs (klik, Mikkers and Wijnker, 2017) and abuse the system. This is apparent with organized criminal elements that target state and private healthcare insurance systems (Savona, Riccardi and Berlusconi, 2016)

Internal FAWE-issues committed by or arising from employees is difficult to uncover relying on technology alone. As mentioned, the human element is needed, and depending on the sophistication of the act, the position of power held by the individual or network of people, investigation can be thwarted. Such internal corrupt acts can be presented as the 'due me' frauds (Mars, 1982, 1984) or the culture of the company, or more specifically a unit within a company. Employees are monitored and work audited but with the volume of claims and 'policing' internal employees consumes time and effort that could be expended elsewhere, i.e. of external threats, risks and frauds.

## Way forward

While there is a substantial difference in the role of PHI in different countries, the health system itself, and the size and function of the health insurance market – there are also similarities. One similarity is its inherent susceptibility and vulnerability to FAWE-issues. This paper, an assessment of the state of play, has established the general nature of the PHI sector to set the stage for a fact-finding mission into some of the PHI provider's FAWE-resilience. Such a mission would be to understand and map the problem, in order to subsequently develop benchmarks, best practices and ultimately reduce loss. Similar to this research, the underlying data could be collected by a survey and amplified by adding qualitative interviews with various stakeholders.

The first step would then be to enhance and expand the survey itself, and then add a qualitative layer. First, include question frames, i.e. a body of text for each question providing information, context and any relevant descriptors and definitions. This would enhance understanding and subsequently the relevance of the answers. Second, close some of the questions. Based on the information provided in the survey many questions can be rephrased to reflect a given range. This would enhance the accuracy of the data provided. Third, complement the quantitative nature of the data presented in this report with qualitative analysis. This is arguably the most important enhancement in terms of adding rich, informative and actionable data. From a methodological perspective this three-pronged approach would mean a significant step in the right direction.

There are also clear indications of the way forward from a more practical perspective. Keeping with the overarching headings, governing process, people and technology – a number of issues and their redress can be identified. The governing processes cannot expect to contain the risks associated with fraud, abuse, waste and error without developing a framework with a holistic approach that takes not only governance, but also business processes, technological advancements and overall organisational maturity into consideration in relation to this risk management. Future research as proposed would strengthen those aspects in reverse order. Informing a holistic yet diverse approach would help organisations to manage their fraud risks successfully, in accordance with evidence-based 'true' needs.

The same principle also applies to people – the need for a diversified yet holistic approach. For people that means also looking beyond hard skills and credentials to soft skills and attitudes. These would be strongly influenced by the expressed and embodied principles and ethics of the organisation (Dorminey et al., 2010; Rubasundram, 2015). These translate into both individual and collective norms and values that determine not only a code of conduct but also drive and nourish an internal anti-fraud culture. Such organisational behaviour would be conducive to the prevention and treatment of fraud risks by the moral development of the people managing it. This would also have bearing on the technology as one inherent limitation is the user whose proficiency depends on a profound understanding of the problem at hand.

The detailed analysis of how the different software systems work and are applied is arguably a project in and by itself. It is, nevertheless an important one as nearly 75% of insurers use automated systems to detect false claims (CAIF, 2016). It is, however, plausible to identify a

number of sectors specific key functions that are considered essential for effective management and investigate to what extent these are fulfilled. For example, advanced predictive analysis can be utilised preventively by identifying suspicious patterns and reactively by detecting fraudulent transactions. Given the size and scope of the PHI sector, developing and implementing tools to manage big data seems inevitable. Here we see machine learning and AI-technologies as somehow necessary to achieve, or at least significantly facilitate, the holistic approach, as advocated earlier, in the fight against fraud (see also Pande and Maas, 2013).

## **Conclusion**

Overall, to achieve this holistic yet diversified approach to combatting fraud there must be an inclusion of all levels and all components in an organisation. These integral components are both conceptually and practically situated in different areas but are nonetheless interrelated and must be treated in an integrated manner. It is thus essential for policies and procedures to be established in such a way that they correspond to the realities of the fraud risks to the PHI sector, and such realities have to be properly established and evidence-based. Even though healthcare fraud will never be completely eradicated (see Stowell, Schmidh and Wadlinger, 2018) PHI organisations should nevertheless adopt this integrated approach to managing fraud risk matters. In doing so studies like these are useful as they provide a guiding framework to create a private healthcare insurance organisation that is apt for the integration of governing processes, people and technology to manage and reduce fraud, abuse, loss and error.

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