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THE COMMON TYPES OF HEALTH INSURANCE FRAUD AMONG INSURED AND HEALTHCARE PROVIDER

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ABSTRACT

Insurance fraud ranks second only to tax evasion as the costliest white-collar crime in America. The main motive in health insurance fraud is financial profit. Insurance contracts provide both the insured and healthcare provider with opportunities for exploitation. In health insurance, fraud, false or misleading information is provided to a health insurance company in an attempt to have them pay unauthorized benefits to the policy holder, another party, or the healthcare provider. The offense can be committed by the insured or the provider of health services. The review result shows that the health insurance fraud has a negative effect on the annual return on assets (financial performance) of insurers, and on the society, and has several types of fraud. When fraud in the health, life and specialty insurance lines is added, insurance fraud costs could exceed $100 billion a year.

KEYWORDS: Types; Health Insurance; Fraud; Insured; Healthcare provider.

INTRODUCTION

Health insurance fraud is a serious problem that costs insurers millions of dollars every year and affects the way patients feel about doctors and other health care providers. To explore the common types of health insurance fraud. Insurance fraud occurs when people deceive an insurance company to collect money or get benefits. Insurance also can defraud consumers, or even each other. Insurance fraud occurs most often when an insured individual makes a

false or exaggerated insurance claim, seeking compensation for injuries or losses that were not actually happened. Patients and their health insurance information can be exploited in various ways that result in increased costs and decreased confidence in the healthcare provider. The health insurance fraud occurs from insured and healthcare provider, and the felony can be committed by the insured or the provider of health services as shown in (Figure 1.)

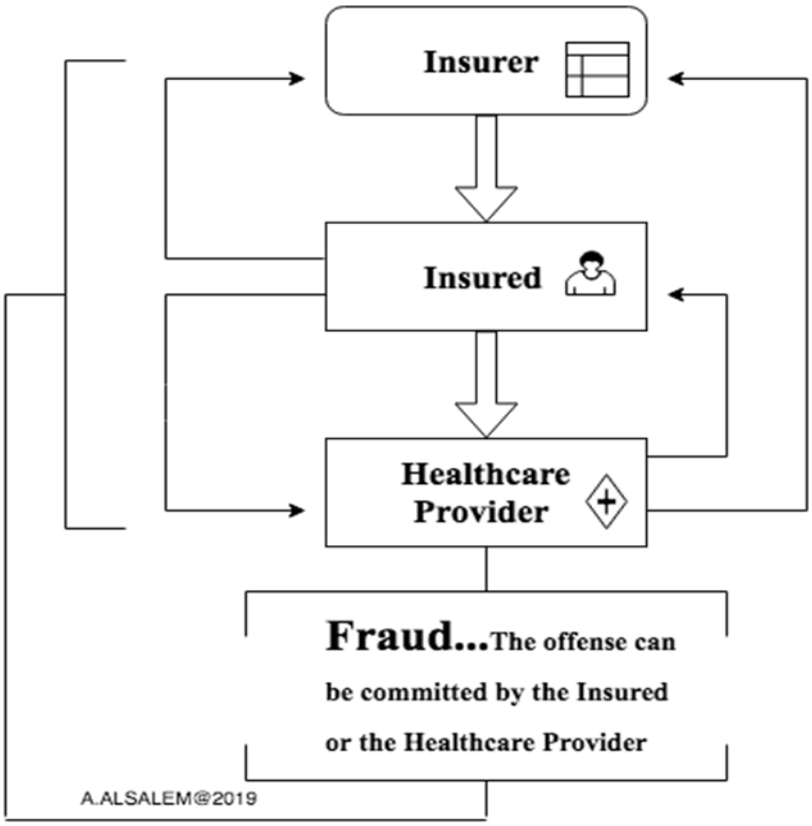

Figure 1. Parties of Health Insurance Fraud.

THE STUDY PROBLEM

Fraud is widespread and very costly to insurance companies. Fraud involves intentional deception or misrepresentation intended to result in an unauthorized benefit.

STUDY SIGNIFICANT

It is very important research, because the fraud in health insurance is an ethical, social, and economic crime that affect the society. Insurance fraud is a major felony that imposes significant financial and personal costs on individuals, businesses, government, and society as whole.

1- The scarcity of the studies that searched health insurance fraud.

2- The bad impact of health insurance fraud which affect many segments of the society.
3- This study represents the common types to overcome health insurance fraud.

RESEARCH QUESTIONS

What are the common types of health insurance fraud among Insured and Healthcare Provider?

STUDY OBJECTIVE

To explore the common types of health insurance fraud among Insured and Healthcare Provider.

LITERATURE REVIEW

Fraud affects all businesses and industries, but when health care is viewed as a single industry including hospitals, physicians, insurers, pharmaceuticals, etc., fraud in this single industry assumes a monumental identity. Malcolm Sparrow of Harvard University affirmed that the order of magnitude of health care fraud is measured in the hundreds of billions, and provided a range of $100-$600 billion. While fraud is typically discussed in financial terms, some health care industry frauds have an element that is absent in most other industries, i.e., individuals' health and lives may be affected. The Association of Certified Fraud Examiners (ACFE) defines fraud as having the following components: 1) a material false statement; 2) knowledge that the statement was false when made; 3) reliance on the false statement by a victim; and 4) damages resulting from the victim's reliance on the false statement (Ratley 2006). The question of "intent" is the central issue in determining if the inappropriate act was indeed "fraud," or instead a simple mistake or act of ignorance. If the act is characterized as a willful intent to deceive and profit from the deception, it can be prosecuted as fraud. While the insurers, e.g., Medicare, Medicaid, and private insurers, are the direct financial victims of health care fraud, the costs flow to the U.S. taxpayers and health care consumers. (James B. et al,. 2013).

Health Care Fraud Schemes by Category

Health care fraud schemes are as varied as people's imaginations. To aid in understanding of the fraud concerns, health care frauds have been categorized into four types below.

I. Provider Frauds: The frauds described in this category have the common element of being committed by the provider, or bogus provider, against the third-party payer such as Medicare,

private insurers, and health care research funding organizations, e.g., government and private foundations. Most provider frauds can be collectively called "False Claim Schemes" for which recovery can be pursued under the Federal False Claims Act. False claim schemes include any billing of health insurers for services or procedures that were not performed or were unnecessary and done with the intent of inappropriately receiving financial gain. The most blatant is billing for services that were not performed. More subtle fraudulent billing schemes include: (1) unbundling claims – splitting procedures normally covered by a single fee into piece parts and separately billing for each; (2) double-billing – billing multiple times for the same service; (3) upcoding or miscoding – charging for a more expensive service than was actually performed; and, (4) kickbacks – payments for referrals are the most common forms of kickbacks. Indirect kickbacks involve overpaying for services or undercharging physicians for services or products provided to encourage more referrals (NHCAA 2008b). Each of these types of fraud could be simple mistakes by uninformed individuals. The characteristic that makes them fraud is systematic intent to maliciously derive inappropriate financial gain (Ratley 2006). More complex, but less common, false claim fraud schemes include the following: (1) Excessive testing by chiropractors – repetitive unnecessary testing performed to "follow progress" of certain procedures performed by chiropractors. (2) Maintenance care ("adjustments") by chiropractors on symptom-free patients (3) Personal injury mills – attorneys and health care providers conspire to bill insurance companies for non-existent or minor injuries. The providers create false diagnoses and bill for unnecessary services. The attorneys then attempt to negotiate "settlements" for injuries based on the fraudulent claims. The patient may be participating without knowledge of the fraud, or may receive payments for participating. (4) Billing for fraudulent or unproven treatments ("Quackery-related miscoding") – billing for "chemotherapy" for fraudulent cancer remedies. (5) Viatical fraud, viatical settlement companies pay a partial advance settlement on life insurance contracts to terminally ill people in exchange for the right to collect in full once the patient dies. Fraud can be perpetrated in multiple ways. Fraudulent agents may sell multiple life insurance policies to a single terminally ill person. The agent then has a healthy person take the initial qualifying medical exam. The fraudulent viatical settlement company then purchases the life insurance policies and re-sells them to unsuspecting third parties. (6) Bogus health insurance companies – illegitimate companies claiming to be health care insurers sell coverage to employers and individuals, but never pay any claims. Both the "covered" individuals who pay the premiums and the care providers that are unable to receive reimbursement for services are hurt in these scams (Barrett 2008).

(7) Nutrigenetic testing scams – the discoveries of genetic influences on risks for diseases has created Internet and retail genetic tests sold directly to consumers. These companies then market diet and exercise programs, and sell at excessive prices, vitamin supplement programs that could be purchased at a fraction of the cost at the local grocery store (United States Government Accountability Office, 2006).

II. Quality Data Reporting Fraud: Quality data reporting fraud is an emerging area of concern. The Office of Inspector General of the US Department of Health and Human Services stated. The accuracy of the data submitted to government agencies and third party payers is vital. In addition to relying on such information for monitoring quality and patient safety issues, the federal health care programs increasingly use this data for determining reimbursement. Consequently, inaccurate reporting of quality data could result in misrepresentation of the status of patients and residents, the submission of false claims, and potential enforcement action" (Corporate Responsibility and Health Care Quality, 2007, p. 7). Fraud can be committed by either the provisioning of medically unnecessary services or for failure of care. When medically unnecessary services are performed, the patient is subjected to unnecessary health risks and payers are billed for unnecessary costs. In the case of "failure of care," the provider is deemed to have defrauded the patient by the poor care, and has defrauded the insurer or the government by billing for services that were not provided. These events are revealed through "the hospital quality data for the annual payment updates, physician quality reporting data to CMS (Centers for Medicare and Medicaid Services), medical error and 'sentinel event' data reported to the Joint Commission, and quality reporting required under state law" (Corporate Responsibility and Health Care Quality, 2007, p.7). This type of fraud has a financial element in that the provider committing the fraudulent reporting has an indirect financial interest that provides motivation. The provider may be attempting to avoid fines or penalties, or may be avoiding closure of a facility. But this type of fraud is of greater concern because of the potential negative impacts on a patient's health. The following types of fraud combine elements of provider and data reporting fraud: (1) Research fraud, falsified drug testing results, and falsified clinical trial results (2) Unlicensed/uncertified care facilities and unlicensed physicians provide appropriate services and bill appropriately even though they have not been properly licensed or certified. This is not as common as billing for fictitious services, and is more likely to be detected through quality regulators, e.g., Health and Human Services, than via payers such as Medicare.

III. Consumer Fraud: In addition to fraud committed by health care providers, individuals commit frauds against providers and insurers that are generally smaller in dollar magnitude than billing or quality frauds. Consumer frauds consist of using fraudulent means to obtain health care services for which a person is not eligible. Some examples include: 1) Misrepresenting dependent eligibility for insurance coverage. 2) Altering prescriptions to obtain a larger number of pain relievers or other controlled substance than prescribed; and, 3) Use of a stolen or fraudulent insurance card to obtain health services.

IV. General Business Fraud: Hospitals and physicians also must be aware of the same non-health related frauds that plague all business – frauds perpetrated against them by their employees or suppliers/contractors. Health care providers are subject to the same type of frauds perpetrated against any other business. Examples include theft of cash copayments, check kiting, phantom employees in the payroll system, false billings from suppliers for incorrect quantities, multiple billings for the same delivery, and billing from shell company suppliers, to name a few.

Like other industries, fraud in health care results in increasing overall costs for the industry. Estimates of the cost of the health care fraud range from 5% to 10% of total health care costs. Consequently, fraud is a serious contributor to the rising cost of health care. The element of the health and lives of members of society provides additional opportunities and rationalizations for committing fraud that are not present with other types of fraud. (James B. et al,. 2013).

According to the investigations of the U.S. Government Accountability Office (GAO), health insurance fraud has caused an enormous pecuniary loss in the U.S. In Taiwan, in dentistry the problem is getting worse if dentists (authorized entities) file fraudulent claims. Several methods have been developed to solve health insurance fraud; however, these methods are like a rule-based mechanism. Without exploring the behavior patterns, these methods are time-consuming and ineffective; in addition, they are inadequate for managing the fraudulent dentists. Based on social network theory, we develop an evaluation approach to solve the problem of cross-dentist fraud. The trustworthiness score of a dentist is calculated based upon the amount and type of dental operations performed on the same patient and the same tooth by that dentist and other dentists. The simulation provides the following evidence. (1) This specific type of fraud can be identified effectively using our evaluation approach. (2) A

retrospective study for the claims is also performed. (3) The proposed method is effective in identifying the fraudulent dentists. (SL W. et al,. 2017).

The study provides a new direction for investigating the genuineness of claims data. If the insurer can detect fraudulent dentists using the traditional method and the proposed method simultaneously, the detection will be more transparent and ultimately reduce the losses caused by fraudulent claims. (SL W. et al,. 2017).

A study conducted to explore physicians' attitudes toward the reporting of patient-initiated health insurance fraud. Three hundred seven physician members of the American College of Physicians returned a mailed questionnaire that presented 6 case vignettes (3 variables) of patients who used a relative's insurance to obtain health care in the past. For each vignette, respondents were asked whether the treating physician should report insurance fraud to the health insurance carrier. Sixty-three respondents (20.7%) indicated that physicians should report all the patients presented in the vignettes, while 45 (14.8%) indicated none should be reported; the rest indicated that the decisions to-report should be based on the characteristics presented, with acute vs terminal illness (P <.001), history of fraud (P <.001), and wealth of the patient (P <.001) all causing physicians to be more likely to report the patient to the health insurance carrier. Multivariate analysis demonstrated that type of practice (P =.04) and respondents' experiences with insurance fraud (P =.03) had significant effects on the willingness to report patients. Physicians are divided about whether to report patients who have committed insurance fraud. Their decisions to report insurance fraud are influenced by their attitudes and demographic features, as well as by patient factors. (NJ F. et al,. 1997).

Insurance is a contractual relationship in which an insurer party agrees with an insurance taker party or policyholder, against payment of a premium, to make monetary provision on behalf of an insured party to cover, after a formal claim has been filed by a (first- or third-party) claimant party, the loss of an insurable interest due to one or more future, well-defined, but uncertain events.1 At any time, all parties transacting in the context of this contract are legally required to act with the utmost good faith toward one another, which obliges them to reciprocally disclose all material information known to them. The duty of the utmost good faith applies throughout the life of the insurance contract and binds all parties equally. Material information to be disclosed to the insurer is information that would influence the decision of a prudent underwriter on whether to accept a risk for insurance and, if accepted, on what terms and at what cost, or would allow the insurer to assess the real extent of the

loss. In the absence of bad faith on behalf of its counterpart, the insurer is legally obliged to honour the obligations of coverage stipulated in the clauses of the contract. In addition to clearly stating what is and, especially, what is not covered by the insurance contract at the time of underwriting, the insurer then primarily demonstrates its good faith by co-operating with the claimant and promptly and generously settling compensation under the terms of the policy. Moreover, at all times, the insurer is expected to act professionally and organize accordingly, i.e. in accordance with professionally accepted standards and ethics. A lack of good faith does not, however, as such, imply fraud. In legal terms, though its exact specification may vary across legal systems, fraudulent activity on behalf of any of the transacting parties generally requires the presence of (at least) the following elements: (1) material misrepresentation (in the form of concealment, falsification or lie), (2) intent to deceive, and (3) aim of gaining an unauthorized benefit.2 The absence of one or more of these key elements makes an undesirable activity at most qualify as so-called abuse of insurance, where the latter is typically defined as any practice that uses insurance in a way that is contrary to its intended purpose or the law. Although fraud has a particular meaning in legislation, the concept of insurance fraud is often used broadly in practice to encompass abuse of insurance, and is often used without implying direct legal consequences. Information asymmetries underlie the very existence of fraud. At important transaction moments in the life of an insurance contract, access to certain relevant information is typically confined to one (or a subset) of the transacting parties. The party with the information advantage often has a clear incentive to commit fraud. In particular, a lot of information about the nature of the risk put up for insurance is private information known only to the party seeking insurance. This clearly provides the latter with the opportunity to intentionally omit or misrepresent material facts or circumstances to obtain a better bargain. In the same way, the claimant is put in a natural position to fraudulently misrepresent the circumstances and nature of the loss. The insurer typically is the one with an information advantage as far as the clauses of the contract and the quality of the cover sought or paid for are concerned. (Viaene S. and Dedene G. 2004).

According to U.S. Association of Certified Fraud Examiners (ACFE), fraud is classified as fraud and abuse in the workplace, and financial statement fraud. Occupational fraud is defined as: "The use of one’s occupation for personal enrichment through the deliberate misuse or misapplication of the employing organization’s resources or assets". ACFE defines fraud financial statements as: "deliberate misrepresentation of the financial condition of an

enterprise accomplished through the intentional misstatement or omission of amounts or disclosures in the financial statements in order to deceive financial statement users." The scientific literature provides various clustering and classification systems for categorizing fraud. Some are similar, while others are redundant and ask questions of interpretation. Common factors found in the research field, determining fraud classifications, are: type of responsibility to the organization's position, motivational relationships to the organization, the criminal group.

Table 2.1: Fraud taxonomies.

Bologna and Lindquist	Albrechet and Albrecht	Singleton and Singleton	KPMG
• Internal Fraud against organization • External Fraud against organization • Fraud for organization	• Employee Misappropriation • Management Fraud • Investment Fraud • Suppliers Fraud • Clients Fraud • Other Fraud Types	• Tort or criminal liability Fraud • Fraud for or against the organization • Internal or external fraud • Management or non-management Fraud	•Employee Fraud • Suppliers Fraud • Clients Fraud • Informatics Fraud • Misadministration • Medical and insurance Fraud • Financial Statement Fraud

Source: (SABAU A. 2012)

All the above classifications present cross cutting issues overlapping each other. Overviews how these different classifications interact with each other, mainly within internal and external fraud projections. ACFE has developed a fraud classification model, known as the "fraud tree", which lists approximately 49 different individual fraud schemes, grouped into categories and subcategories. The three main categories in which fraud is classified, are:

• Fraudulent Statements;

• Assets Misappropriation;

• Corruption.

Fraudulent statements schemes are made usually by people in senior management and are producing the biggest losses for the affected organization. Assets misappropriation schemes are usually made by employees and can be also classified into subcategories. They have the highest frequency of occurrence and are those that produce the lowest losses. The fraud tends to be insignificant at an individual level and it is very difficult to be recognized by both internal and external auditors during audits. (SABAU A. 2012).

Some of the most common types of fraud and abuse are misrepresentation of services with incorrect Current Procedural Terminology (CPT) codes; billing for services not rendered; altering claim forms for higher payments; falsification of information in medical record documents, such as International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) codes and treatment histories; billing for services that were not performed or misrepresenting the types of services that were provided; billing for supplies not provided; and providing medical services that are unnecessary based on the patient's condition. (Rudman W. et al,. 2009).

From our review of the literature, the following four solutions to identifying and reducing fraud and abuse are suggested:

1. Training and education
2. Implementation of computer-assisted coding (CAC)
3. Increased federal enforcement of fraud and abuse monitoring
4. Use of data modeling and data mining. (Rudman W. et al,. 2009)

There are three major parties involved in the entire system, (1) Service Providers (2) Insurance Subscribers (3) Insurance Carriers. The Service Providers including doctors, hospitals, ambulance companies and laboratories. The Insurance Subscribers including patients and patient's employers. The Insurance Carriers who receive regular premiums from subscribers and pay health care cost on behalf of their subscribers.

Generally there are two types of frauds. First one is Hard fraud: This is a deliberate attempt either to point an event or an accident, which requires hospitalization or other type of loss that would be covered under a medical insurance policy. Second one is Soft fraud: Which occur when people purposely provide false information such as claim fraud, application fraud and eligibility fraud sources and then put to use by data miners to achieve the desired results. (Faseela and Thangam, 2015).

The health care system in US contains two main programs: Medicare and Medicaid services. Medicare is a social insurance program administered by the United States government, providing health insurance coverage to (1) people age 65 or older, (2) people under 65 with certain disabilities, and (3) people of all ages with End-Stage Renal Disease, i.e., permanent kidney failure requiring dialysis or a kidney transplant. Medicare program provides three types of services: hospital insurance, medical insurance and prescription drug coverage.

While Medicaid is a state administered program and each state sets its own guidelines regarding eligibility and services. Medicaid is available only to certain low-income individuals and families who fit into an eligibility group that is recognized by federal and state law. For both Medicare and Medicaid programs, there are three major parties involve in: (1) service providers, including doctors, hospitals, ambulance companies, and laboratories; (2) insurance subscribers, including patients and patients' employers; (3) insurance carriers, who receive regular premiums from their subscribers and pay health care costs on behalf of their subscribers, including governmental health departments and private insurance companies. According to which party commits the fraud, health care fraud behaviors can be classified as follows (Qi Liu and Miklos Vasarhelyi, 2013).

1. Service provider's fraud

(a) Billing services that are not actually performed.

(b) Unbundling, i.e., billing each stage of a procedure as if it were a separate treatment;

(c) Upcoding, i.e., billing more costly services than the one actually performed;

(d) Perform medically unnecessary services solely for the purpose of generating insurance payments;

(e) Misrepresenting non-covered treatments as medically necessary covered treatments for the purpose of obtaining insurance payments;

(f) Falsifying patients' diagnosis and/or treatment histories to justify tests, surgeries, or other procedures that are not medically necessary.

2. Insurance subscribers' fraud:

(a) Falsifying records of employment/eligibility for obtaining a lower premium rate;

(b) Filing claims for medical services which are not actually received;

(c) Using other persons' coverage or insurance card to illegally claim the insurance benefits.

3. Insurance carriers' fraud

(a) Falsifying reimbursements;

(b) Falsifying benefit/service statements.

4. Conspiracy fraud: the fraud involving more than one party, i.e., a patient colludes with his physician, fabricating medical service and transition records to deceive the insurance company to whom he subscribes.

According to the above classification, we can clearly see that the fraud committed by service providers accounts for the greatest proportion of the total health care fraud among the four types of fraud. And service providers' fraud can cause great damage to the health care system. Hence, it attracts large amount of research effort. In current literature, about 69% of researches have been devoted to detecting service providers' fraud, while the research efforts on the other three types of fraud are limited (31% for insurance subscribers' fraud and 0% for insurance carriers' and conspiracy fraud). (Qi Liu and Miklos Vasarhelyi, 2013).

One such fraud, known as upcoding, is a means by which a provider can obtain additional reimbursement by coding a certain provided service as a more expensive service than what was actually performed. With the proliferation of data mining techniques and the recent and continued availability of public healthcare data, the application of these techniques towards fraud detection, using this increasing cache of data, has the potential to greatly reduce healthcare costs through a more robust detection of upcoding fraud. Presently, there is a sizable body of healthcare fraud detection research available but upcoding fraud studies are limited. Audit data can be difficult to obtain, limiting the usefulness of supervised learning; therefore, other data mining techniques, such as unsupervised learning, must be explored using mostly unlabeled records in order to detect upcoding fraud. (Bauder R. et al,. 2017).

Examples of fraudulent activity consist of fraudulent billing, kickbacks, up-coding services, bundling, and ghost patients. Estimates are that 80% of healthcare fraud is committed by medical providers, 10 percent by consumers, and the balance by others, such as insurers themselves and their employees. 9 Table 1 presents an illustrative overview of the types of fraudulent conduct that have been pursued in court or reported in the press in recent years. These examples have been drawn from a systematic search of reported actions using legal search engines, as well as a review of legal journal and news articles on health care fraud-related actions. The types of fraud recovery actions described in table 2.2 might be pursued privately by health insurers as civil fraud cases, while state Attorneys General or the United States Department of Justice also have wide-ranging powers under state and federal law to pursue health care fraud under numerous legal theories. These cases suggest that the most common type of fraud involves systematically overcharging insurers for the cost of items and services for which payment is specified either by contract or in law. Thus, for example, many pharmaceutical companies have been pursued by Medicaid programs for failing to adhere to federal prescription drug rebate requirements, with resulting major overcharges to state

agencies. (Because the Centers for Medicare and Medicaid Services have not yet reported on cases of either improper payment or fraud under the Medicare Part D program, it is not possible to know the magnitude of such practices under Medicare). Similarly, hospitals have been charged with systematically upcoding Medicare claims to falsely elevate the cost of care.

Table 2.2: Health Care Fraud Across the Health Care Industry: Private Health Insurance, Medicare, and Medicaid. (Rosenbaum S. et al,. 2009).

ACCUSED COMPANY	INDUSTRY	TYPE OF FRAUD	RECOVERY
UnitedHealth	Managed Care	Underpaid consumers (10%- 28%) by manipulating database it used to pay customers for out-of-network services	$350 million
McKesson	Pharmaceutical	Fraudulently inflated prices of approximately 450 drugs charged to insurers and consumers	$350 million
HealthNet	Managed Care	ERISA and RICO violations by underpaying consumers in several states	$215 million
Cleveland Clinic	Integrated Health Care System	Medical identity theft; false claims	Unknown
Tenet	Hospital	False claims, Kickbacks	$900 million
TAP Pharmaceuticals	Pharmaceutical	False claims, Conspiracy, kickbacks	$ 559.5 million
St. Barnabas Hospitals	Hospital	False claims	$265 million
HCA	Hospital	False claims, kickbacks	$631 million
HealthSouth	Rehabilitative Medicine Services	False claims	$325 million
Ciena Healthcare Management, Inc.	Nursing Home	False claims from inadequate care in nutrition and hydration, the assessment and evaluation of needs, care planning and nursing interventions, medication management, fall prevention, and pressure ulcer care, including the prevention and treatment of wounds.	$1.25 million

*Private Health Insurance

***Medicare**

ACCUSED COMPANY	INDUSTRY	TYPE OF FRAUD	RECOVERY
United Health Group and other insurers	Insurance	Fraud, misrepresentation, deception through use of company-owned Ingenix system to systematically undervalue its payment obligations for physician services in order to shift the cost of out-of-network coverage from the insurer to members and plan sponsors	Approximately $100 million
Humana	Insurance	Fraud, deception involving concealment of the actual cost of hospital services from plan members	
Amerigroup	Insurance/Managed Care	False claims involving the treatment of pregnant women and other patients	$225 million
Merck	Pharmaceutical	False claims, Kickbacks	$650 million
Serono Group AstraZenica Pharmaceuticals Wyeth	Pharmaceutical	False claims, Kickbacks	$567 million $160 million Qui tam action pending
Bristol-Meyers Squibb, KV Pharmaceuticals, Roxane Laboratories, Abbott Laboratories, Aventis Pharmaceutical, Teva Pharmaceuticals, Schering Plow/Warrick, Forest Laboratories, Baxter International, Dey Pharmaceuticals, Bayer Pharmaceuticals	Pharmaceutical	False Claims	$123.75 million
Omnicare, Inc.	Pharmaceutical	False claims by replacing brand-name with generic drugs or switching dosage strengths	$49.5 million

*Medicaid Source:(Rosenbaum S. et al,. 2009)

Effect of health insurance fraud

Eighty percent of healthcare expenses hinge on physicians' decisions about what services patients need. Physicians might be tempted to prescribe irrelevant services to increase revenues. Other fraudulent behaviors committed by providers include alteration of prescriptions, claiming reimbursement for non-provided treatments, generating “ghost patients", among others. Patients may also be involved in fraudulent behaviors. This is typically related to providing inaccurate information to insurers. Patients, for instance, may give incorrect medical history, false demographic information, or erroneous financial status to get better insurance coverage. Specific examples of fraudulent behaviors by patients

include submitting a claim for ineligible dependents, filing claims for services not actually received, using another person's insurance information. (Johnson M. and Nagarur N. 2015).

Healthcare costs in the US, as well as in other countries, increase rapidly due to demographic, economic, social, and legal changes. This increase in healthcare costs impacts both government and private health insurance systems. Fraudulent behaviors of healthcare providers and patients have become a serious burden to insurance systems by bringing unnecessary costs. Insurance companies thus develop methods to identify fraud. This paper proposes a new multistage methodology for insurance companies to detect fraud committed by providers and patients. The first three stages aim at detecting abnormalities among providers, services, and claim amounts. Stage four then integrates the information obtained in the previous three stages into an overall risk measure. Subsequently, a decision tree based method in stage five computes risk threshold values. The final decision stating whether the claim is fraudulent is made by comparing the risk value obtained in stage four with the risk threshold value from stage five. The research methodology performs well on real-world insurance data. (Johnson M. and Nagarur N. 2016).

Types of health insurance fraud

Three commonly encountered functional classifications of insurance fraud are: (1) internal vs. external, (2) underwriting vs. claim, and (3) soft vs. hard. (Viaene S. and Dedene G. 2004).

Fraud has been defined as an "intentional deception or misrepresentation made by a person or an entity, with the knowledge that the deception could result in some kinds of unauthorized benefits to that person or entity". Because of complexities of defining fraudulent behavior and detecting fraudulent cases, measuring fraud losses in health care is difficult. Undetected frauds remain a problem; in many individual cases, it may not be possible to determine whether a claim is fraudulent or not. Still, it has been estimated that three to ten per cent of health care spending is lost to health care fraud and abuse, amounting to billions of dollars per year. (Rashidian A et al., 2012).

Based on who conducts the fraud, we can classify fraud into categories of provider fraud, consumer fraud (patient or insured), and insurer or payer fraud. Provider health care fraud may be committed by individuals (e.g. physicians, dentists) or by provider organizations (e.g. hospitals). Sometimes providers engage in frauds that involve other service providers (e.g.

diagnostic services) or pharmaceutical and medical device manufacturers by receiving kickback payments (Table 2.3). (Rashidian A et al., 2012).

Table: 2.3: Some examples of fraud and abuse.

Providers fraud	Patients or insured people fraud	Insurer (third party payer) fraud	Abuse
Phantom billing: Billing for Services not provided. Adding otherwise legitimate claim charges for services never performed (padding the bill) or fabricating claims.	Doctor shopping: Bouncing from one doctor to another in order to obtain multiple prescriptions for controlled substances.	Agent or insurer falsifying reimbursements	Substandard care: incidents or practices those are not consistent with the standard of care
Up-coding: Charging for a more expensive service such as a visit to a specialist when the patient actually saw a nurse or an intern.	Identity theft: Obtaining and using another person's health insurance card or identification, by theft, or deception, to obtain health care or other services or to impersonate that individual.	Agent or insurer falsifying benefit or service statements	Providing unnecessary care: Including unnecessary tests, surgeries, and other procedures, for the purpose of increasing the reimbursement.
Misrepresenting services: Performing uncovered services but billing insurance companies for different services that are covered.	Misuse of insurance card: allowing some unauthorized person to use your ID card to obtain medical services or drugs. Acting in collusion with the insured/member to obtain health care services by assuming the member's identity	Agent or insurer collecting premiums, then issuing no insurance	Unnecessary costs to a program caused either directly or indirectly: via unnecessary care, or additional services not warranted for the well-being or satisfaction of the patient.
Misrepresenting the Diagnosis to Justify Payment	Patients claim exemption from prescription charges when they are not in fact exempt.		Failure to document medical records adequately in the payer's view
Unbundling or “Exploding” Charges: Charging separately for procedures that are actually part of a single procedure	Patients have falsely stated that they have lost their prescriptions and obtained duplicates.		Patients have falsely stated that they have lost their prescriptions and obtained duplicates.
Falsifying Certificates of Medical Necessity, Plans of Treatment, and Medical Records to Justify Payment	Patients have falsely registered with a number of doctors and obtained prescriptions from each.		Charging the insurers higher rates than that for non-insured patients (i.e. normal tariffs)
Billing for professional services rendered by personnel lacking appropriate credentials.			
Payment or receiving kickbacks (also known as fee-splitting)			
Self-referral: referring the patients to a clinic, diagnostic service, hospital etc with which the referring physician has a financial relationship.			

Today, the over $2 trillion US healthcare system is ravaged by fraud, waste, and abuse, with an estimated one-third of all these costs frivolously spent in such ways. Sun Tzu wrote, “Every battle is won or lost before it's ever fought.” To combat healthcare fraud, we must

understand it and the forms it takes. In this paper, we systematically evaluate published literature using Webster and Watson's concept matrix technique. From the applicable published literature, we provide a categorization and description of the documented types of fraud in healthcare. (Thornton D. et al,. 2015).

Fraud Types Described in Literature

27 Articles are selected as most descriptive of fraud types across this literature after a more thorough review of the full 69 works. Most articles discuss multiple types of fraud. The number of articles referencing each fraud type is shown in the graph below. We will now discuss the 18 fraud types identified in literature. (Thornton D. et al,. 2015).

i. Kickback schemes

One of the most discussed types of fraud is fraud involving kickbacks. Kickbacks exist in different forms. For example, pharmacists can fill a prescription with a specific brand of medicines instead of another that yields a bonus from the pharmaceutical company. Beyond financial implications, this might also be detrimental to the patient's health. Physicians themselves can fraudulently write prescriptions for money, essentially a kickback from the downstream illegal sale of these drugs. Benett points to the importance of complying with kickback legislation, and states that deals that seem too good to be true can be illegal.

ii. Self-referral

Rashidian defines self-referrals "referring the patients to a clinic, diagnostic service, hospital etc. with which the referring physician has a financial relationship." This might involve a kickback scheme if the referred-to party pays a commission back to the physician, but other financial relationships are conceivable. For example, many physician groups and hospitals are sustaining through growing. While some economies of scale are achievable through growth, referrals within the same financial organization are becoming normal and accepted practices that typically elude significant audit scrutiny.

iii. Doctor shopping

If feigning pain or bribing a doctor does not work, a drug-seeking person may simply look for another doctor who will provide the desired prescriptions. A patient can easily visit multiple doctors to obtain prescriptions (often multiple times). Carlson refers to a study by the US Government Accountability Office that found that in 2011 about 600 patients in the Medicare program filled prescriptions from more than 20 doctors each.

iv. Identity fraud

Identity fraud may happen where an uninsured individual assumes the identity of a person with insurance coverages to obtain services or to hide a certain illness. They mention that the healthcare services eventually provided to the person 'lending' their identity could be adversely affected, since their health records will contain unrelated and potentially contrary information. Identity theft can also happen without the owner of the identity knowing. Dube[8] mentions identity theft conducted by foreign gangs that have scammed federal authorities for millions of dollars.

v. Fraud by pharmaceutical companies

Sparrow describes pharmaceutical abuses beyond the kickbacks schemes are mentioned above. Specifically, off-label promotion of drugs involves the marketing of drugs for uses which are not approved by the Food and Drug Administration. Illegal price manipulation in collusion with downstream data providers or other pharmaceutical companies has been shown on multiple occasions.

vi. Device and services price manipulation

Similar to pharmaceutical companies but usually at a smaller, more regional scale, providers of medical equipment or health services can manipulate prices for certain groups of clients. If they know Medicaid will pay varying rates for services, the may increases prices directly. Or, they may move across the street to the next zip code from which they can bill a higher rate.

vii. Improper coding and upcoding

Improper coding, sometimes called upcoding, is one of the most discussed and prevalent fraud topics. Agrawal describes upcoding as "billing for a more expensive service or procedure than the one performed." He also describes improper coding, which he differentiates as due to an administrative error versus a malicious attempt to increase revenue.

viii. Unbundling

Unbundling means creating separate claims for services or supplies that should be grouped together. Unbundling may be seen as a part of improper coding, but multiple authors mention unbundling as a separate form of fraud. Today software such as Grouper looks for unbundling and will either reject unbundled claims or "rebundle" the claims and adjust the bill to pay for the combined procedure code.

ix. Submitting double bills

When it comes to submitting claims not only improper coding practices can be fraudulent, but also care providers can try to submit the same claim multiple times, in order to get paid two times for performing one action. Byrd describes double-billing as "billing multiple times for the same service." Automatic acceptance of claims is mostly done to improve processing speed, however Benzio rightly mentions that for true efficiency not only speed matters. Tests for legitimacy are just as important.

x. Billing for services not provided

With double billing, at least care is provided to a patient. With billing for services not provided, claims are submitted for health care services that have not been provided or for medicines or medical devices that have not been delivered to the patient. This concept is also referred to as phantom billing. One of the examples mentioned by Stanton and Lubao described providers that submit so many claims on one day that is not physically possible (or at least highly unlikely) to help so many patients. To get around this minor obstacle, Brooks describes the new practice of ghost employees: fake employees on the health providers' payroll that do not actually exist. Evans shows evidence of practices submitting bills for group sessions, while only one patient was treated. Thornton describes multidimensional data models centered around providers and provider groups, respectively, that can be utilized to highlight excessive billing at the provider and provider group models. Related to this method of fraud is submitting false claims to the systems to discover how to get a false claim approved. Since claims are mostly automatically processed, knowing the thresholds of the claim handling systems allows one to submit claims for services not provided that do not trigger monitoring systems. There are several ways, these types of schemes are found out. In order to submit false claims, accurate information from patients is needed. Sometimes a false claim is submitted for a patient that is no longer alive. Research on a population in Ontario (Canada) showed that, for 1 out of every 3000 deaths, providers submitted claims for medication more than one year after a patient was deceased.

xi. Providing unnecessary care and maximizing care

It may also happen that more healthcare is provided than was actually needed to heal the patient; thus providing unnecessary care. Sometimes certificates are falsified to show the medical necessity of certain actions in order to justify payments. Morris also describes maximizing the number of services and claims. The fee-for-service model means that

physicians get paid based on the services they provided – maximizing the number of services means maximizing their pay. Outlier detection techniques have shown promise in detecting providers that differ from their peer groups. Other examples of unnecessary care include 'Rolling labs' which administer tests provided by health care providers that temporary visit shopping centers or retirement houses. These are simple test, but billed as expensive tests to insurance programs. Furthermore sometimes care providers use unproven treatments, which might not work in the end and thus result in unnecessary care provided.

xii. False negation cases

False negotiation cases are mentioned by Doan are cases that arise from situation in which a health care provider makes false statements to induce the government to enter into a contract for services or supplies. Sometimes this is also referred to as frauds-in-the-inducement.

xiii. Using the wrong diagnosis

Claims are submitted for a service provided based on a stated diagnosis. These diagnoses can also be manipulated a patient can get a certain diagnosis while that is diagnosis is not actually true. This type of fraud can be done to falsely prescribe certain medicines to a patient, for example.

xiv. Billing for services rendered by unqualified personnel

Care can be provided by people who do not have the credentials or license to actually perform that kind of care. An example of this is when an intern is providing care that a physician bills for and which the intern is uncertified to perform or unqualified to bill.

xv. Lying about eligibility

Patients can lie about their situation when they visit a pharmacist or a physician. They can for example claim exemption from prescription charges, when they are not exempt or they can misrepresent information about their dependents to get insurance coverage for them.

xvi. Reverse false claim cases

False claims that are paid by an insurance program result in a provider receiving money from the insurer. Reverse false claims represent situations where a care provider owes money to the government and doesn't pay it back on time.

xvii. Managed care fraud

Managed care, as opposed to fee-for-service, represents a growing proportion of the US health insurance market. Within Medicaid, Managed Care Organizations (MCOs) now cover the majority of patients. This type of insurance mechanism theoretically passes risk from the primary payer to an intermediary insurer, which is paid on a capitated rate for the population they insure. Doctors participate either at-risk, also taking a capitated rate for their patients for certain services, or in a fee-for-specific-services arrangement. These changed incentives provides for new areas of fraud, as mentioned by Sparrow, including denial of services to patients, providing substandard care and creating logistical and/or administrative obstacles for patients in order to receive the care they need.

xviii. Waiving co-payments

Insurance plans can require co-payments for certain services to incentivize patients to make appropriate cost-minded decisions in their health care. Freeman and Loavenbruck discuss health care providers waiving copayments or deductibles, removing these incentives and violating their participation agreement with the insurer.

This paper provides a systematic literature review of health insurance fraud types in published works. Much work has been done in this space in recent years, yet much work remains. Sun Tzu wrote, "Know your enemy and know yourself, find naught in fear for 100 battles. Know yourself but not your enemy, find level of loss and victory. Know thy enemy but not yourself, wallow in defeat every time." Healthcare fraud is an evolving type of crime, with new schemes emerging on a regular basis. In this review, we discuss and describe the enemy, the types of fraud that plague healthcare today. For the health insurance industry to succeed in combatting fraudsters, it must also know itself – its systems and how data mining and analytic techniques can be applied within them to detect fraudulent activity. The research shows a discrepancy in the amount of publications for each type of fraud. Some types of fraud get much more attention than others. If research into healthcare fraud is lacking, catching it is difficult, and preventing it from happening is near impossible. Based on practical experience, we expect the lack of training data (structured datasets containing health care fraud cases) and a lack of useful open data available as the main causes for the relative small amount of research into the technological aspect of health insurance fraud. National and state privacy laws that inhibit data sharing and the desire of insurers to maintain proprietary approaches for competitive reasons will both continue to pose high barriers to progress in this

field. Future research can describe how data mining techniques are being used to combat healthcare fraud as well as develop on models that map these techniques to fraud types and tool frameworks. The fight against fraud in healthcare will be an ongoing struggle, but, though knowing our enemy as well as understanding the tools at our disposal, we can make continual progress in improving the state of the industry. (Thornton D. et al,. 2015).

Some common fraud types in health insurance in Turkey

An overwhelming majority of fraud events in insurance industry follow a limited number of patterns which are usually known to the insurance experts. Different types of insurance transactions can have different types of fraud. Fraud in health insurance can be specific to each country taking advantage of inadequacy of the relevant legislation or being affected by the local culture. For example, people in the countries with a collectivist culture may have a higher tendency to abuse the system compared to the countries with individualistic culture. Personal and family ties are stronger in the former compared to the latter and an uninsured person may unlawfully get insurance benefit disguising himself as an insured person. This, of course, requires the consent of the genuinely insured person. A specific pattern that is believed have some propensity to fraud is a heuristic and based on company experience. Although each company has its own set of such patterns, those patterns usually overlap. However, the companies are usually reluctant to disclose these patterns because they are concerned for fraudsters being aware of them (Morley et al., 2006). Insurance claims that match the known patterns can be easily detected by traditional database reporting tools or computer languages like SQL. However, this technique provides only a rough guide to insurance experts, because only a small minority of such claims is indeed fraudulent. Hence, all claims that match the known fraudulent patterns need to be closely investigated by experts. This investigation may target not only the insured individuals, but also the business partners such as insurance agencies, hospitals (health centers) or pharmacies. Sometimes the fraud may take place by the collaboration of different entities. It may even be committed by the insurance company employees. Some known fraud types in health insurance sector in Turkey are as follows.

i. Charging excessive prices for a treatment or medicine in a health center.
ii. Unusually high number of invoices for a particular insuree in short time frame (3-4 days).
iii. Insurance transaction(s) where the insuree has got some treatment or medicine but either has not paid any installments or has paid only the first installment.

iv. Cases where the insuree buying medicine without medical examination.
v. Claiming medical invoices with dates prior to or after than the beginning of the insurance period (this is permitted in some cases).
vi. Excessive number of medicine claims in a specific period.
vii. Bank account number changes of a business partner such as agency, health center or pharmacy.
viii. Excessive numbers of manual invoice demands whose amounts are smaller than the usual inspection limit.
ix. Claims whose payable amounts are greater than the invoice amounts that insurance company will pay. (Kirlidog M. and Asuk C. 2012)

Roughly $700 billion of the $2.7 trillion spent on healthcare in the US is attributable to fraud, waste, and abuse (Kelley 2009). Fraud, waste, and abuse in the U.S. healthcare system are estimated at $700 billion annually. Predictive analytics offers government and private payers the opportunity to identify and prevent or recover such billings. This paper proposes a data-driven method for fraud detection based on comparative research, fraud cases, and literature review. Unsupervised data mining techniques such as outlier detection are suggested as effective predictors for fraud. Based on a multi-dimensional data model developed for Medicaid claim data, specific metrics for dental providers were developed and evaluated in analytical experiments using outlier detection applied to claim, provider, and patient data in a state Medicaid program. The proposed methodology enabled successful identification of fraudulent activity, with 12 of the top 17 suspicious providers (71%) referred to officials for investigation with clearly anomalous and inappropriate activity. Future research is underway to extend the method to other specialties and enable its use by fraud analysts. Healthcare payers deal with fraudulent practitioners, organized criminal schemes, and honest providers who make unintended mistakes while billing for their legitimate services. Government programs are particularly susceptible to fraud, as it is harder to exclude problematic providers than in privately managed provider networks. Data analysis methods utilized in other sectors are not yet widely deployed and utilized in this domain, partially due to the high level of subject matter knowledge needed to adapt these techniques to the unique environments in which they must be deployed. Yet, with up-front engineering and ongoing adaptations, techniques such as outlier detection offer a lifeline to programs struggling to rein in spiraling costs and remain solvent. (Thornton D. et al, 2014).

Conventional techniques for detecting outliers address the problem of finding isolated observations that significantly differ from other observations that are stored in a database. For example, in the context of health insurance, one might be interested in finding unusual claims concerning prescribed medicines. Each claim record may contain information on the prescribed drug (its code), volume (e.g., the number of pills and their weight), dosing and the price. Finding outliers in such data can be used for identifying fraud. However, when searching for fraud, it is more important to analyse data not on the level of single records, but on the level of single patients, pharmacies or GP's. In this paper we present a novel approach for finding outliers in such hierarchical data. Our method uses standard techniques for measuring outlierness of single records and then aggregates these measurements to detect outliers in entities that are higher in the hierarchy. We applied this method to a set of about 40 million records from a health insurance company to identify suspicious pharmacies. The inspiration for this paper comes from a real life fraud detection problem in health insurance, in the pharmacy domain. The goal of fraud detection in this context is to identify the most suspicious pharmacies that could possibly be involved in fraudulent activities, rather than identifying single claims that are suspicious. The main reason for not focusing on single outliers is that recovering money from single claims is costly, and that it can harm the relationship between an insurance company and the involved pharmacy, especially in the case of false positives. On the other hand, if the insurance company can detect substantial fraud linked to multiple claims of the same pharmacy, this business relationship is no longer so important and a vigorous money recovery action can follow. In contrast to typical approaches for finding single outliers, we propose a novel method for finding groups of outlying records that belong to the same class. Our method was successfully applied to a large set of health insurance claims, helping to identify several pharmacies involved in fraudulent behavior. Our method for detecting group outliers works in two stages. In the first stage we calculate outlier scores of single records. We use here classical methods for outlier detection that are based on distance measures, or density estimation. Next, we calculate a statistic to measure the outlierness of each groups of records, where groups form logical entities. In our case, each entity is formed by all claims related to a pharmacy, or a combination of a pharmacy and a type of medication. We propose four different statistics that are used to define the final outlier score of these entities: (1) A rank-based statistic, (2) A weighted rank-based statistic, (3) A statistic based on the binomial distribution, and (4) A statistic that is based on the mean of the outlier score. These statistics can be applied in different situations to different outlier scores.

The statistics can be computed over different segments of the data to obtain the final score. Extra information about outlying entities can be obtained by constructing, for each entity, a so-called fraud set: a set of suspicious claims from a given entity. A fraud set is a minimal set of outlying records that should be removed from the whole set in order to make it "normal" again. Another, very useful instrument for displaying fraud evidence is a fraud scatter plot. Each point on such a plot represents a single entity; the x and y coordinates of a point are, respectively, the outlier score of the corresponding fraud set and the total amount of money involved in this fraud set, fraud amount. The fraud scatter plot can be used by fraud investigators to decide whether they should investigate the most likely fraud cases, or to focus on cases that are less suspicious, but involve high amounts of money. Our paper is organized as follows. We start with a brief overview of related work. Then we present two approaches for calculating outlier scores of single records: distance-based and density-based. In Section 4 we explain four methods for aggregating individual scores, a procedure for identifying fraud sets, and a method for visualizing results with help of the fraud scatter plot. Results of our experiments are presented in Section 5, while the last section contains conclusions and some recommendations for further research.(Konijn R. and Kowalczyk W., 2011).

A study conducted in Korea to examine the general deterrence effect of the Korean government's fraud and abuse enforcement program on medical clinics in the country. The effects were evaluated by analyzing the association between the fear of penalty from a potential onsite investigation and the costliness index (CI). Using a stratified proportional systematic sampling method, 800 out of the 15,443 clinics in Korea that had not had an onsite investigation before June 2007 were selected. Perceived deterrence was measured via face-to-face interviews with the chief doctor of each clinic; these were conducted in July and August 2007. CI was calculated by dividing observed costs by expected costs based on National Health Insurance Claims from January to October 2007. The findings are clinics with a high fear of penalty had a significantly lower CI than did other clinics after adjusting for factors related to the provider's perception of onsite investigation, the provider's service experiences, and general characteristics such as provider's sex and age. Designing effective fraud and abuse control programs can improve the efficiency of providing services to patients. (Kang H. et al,. 2010).

A study conducted to explore patterns of fraud and abuse that exist in the National Health Insurance Scheme (NHIS) claims in the Awutu-Effutu-Senya District using data mining techniques, with a specific focus on malaria-related claims. The study employed quantitative research approach with survey design as a strategy of enquiry. This survey explores the utility of various data mining techniques such as data collection, data cleaning/extraction, data integration, data selection, data transformation and pattern evaluation in health domain. Samples of 720 clients diagnosed of malaria in the years 2013, 2014 and 2015 from 4 NHIS service providers in the districts were randomly selected for this study. Results from two-way between-subjects Analysis of Variance (ANOVA) revealed that Hospital B Private and Hospital A Private recorded the highest and lowest mean cost of malaria treatment respectively. The study further revealed that repetition of NHIS registration number, over billing of drugs, drug mismatch, excessive prescription of drugs for malaria treatment and duplication of clients records were some of the fraud and abuse at the facility. One of the major challenges of the insurance industry is fraud and abuse which causes substantial losses. Gill and Randall (1994), described fraud in the insurance industry as knowingly making a fictitious claim, inflating a claim or adding extra items to a claim, or being in any way dishonest with the intention of gaining more than legitimate entitlement. According to the NHIA (2013), types of fraud by providers include billing for services not rendered, up-coding of services, double billing/duplicate claims, misrepresentation of diagnosis, un-bundling of services, unnecessary services, inappropriate referrals for financial gain and insertion/substitution of medicines. This is supported by the United States Department of Health and Human Services (2014).

Based on the findings of the study the following are important considerations that would help improve management of the NHIS to ensure long-term sustainability. The NHIA should: 1. Increase advocacy and sensitization of the impact of fraud and abuse on the health insurance system. 2. Pass specific health insurance fraud laws making it a criminal offence e.g. USA Health Insurance Portability and Accountability (HIPAA) of 1996. 3. Introduce biometric authentications at provider sites for eligibility and membership to generate claims check codes. 4. A disbursement formula for all cost entries should be designed and a check mechanism put in place to ensure all NHIS providers adhere to that. (Kittoe and Addo, 2017)
Under Section 409(c) of the Financial Services Law, summarizes the 2017 activities of the Department of Financial Services ("DFS") in combating health insurance fraud. DFS's Insurance Frauds Bureau ("Bureau") investigates and combats healthcare fraud, which affects

three major types of insurance: accident and health, private disability, and no-fault. The Bureau is headquartered in New York City, with an office in Garden City and five offices across upstate New York located in Albany, Syracuse, Rochester, Buffalo, and Oneonta. The Bureau, working with DFS regulated entities, has a longstanding commitment to combating insurance fraud and strives to serve the people of New York State. Highlights of the Department's efforts in combating healthcare fraud in 2017 include the following: i) The Bureau opened 116 healthcare fraud investigations in that resulted in 105 arrests; ii) The Bureau received 14,622 reports of suspected healthcare fraud: 12,887 no-fault reports, 1,500 accident and health insurance reports, and 235 disability insurance reports. iii) Reports of suspected no-fault fraud accounted for 54% of the 23,876 suspected insurance fraud reports received. (Vullo M. 2018).

Some of the major healthcare fraud investigations conducted by the Bureau during the past year, to the extent public, are summarized below. The Department has pending numerous other, confidential, investigations of healthcare fraud.

In March of 2017, an FBI Health Care Task Force investigation led to the arrest and indictment of a cardiologist, a neurologist, and four other defendants in connection with a 12-year scheme to defraud Medicaid, Medicare, and private health insurance out of more than $50 million. Among other illegal acts, defendants are alleged to have submitted claims to insurers for medical tests that were not performed or that were medically unnecessary. Certain defendants were alleged to have used various unlawful means to obtain and maintain a high volume of patients for use in the scheme, which included paying kickbacks in exchange for referrals of patients to the clinic, and repeatedly violating healthcare privacy laws to identify and recruit patients.

Another FBI Health Care Task Force investigation that DFS participated in led to the arrest in March of a licensed psychiatrist who was employed by the Veterans Administration in Canandaigua on charges of healthcare fraud, money laundering, and tax fraud. The doctor allegedly improperly billed healthcare benefits programs for services he did not provide, deposited proceeds from the scheme into multiple personal accounts, demanded cash payments from his patients and took actions to avoid currency reporting requirements, and submitted false tax returns.

In November, as the result of an investigation in which DFS participated as part of the FBI Health Care Fraud Task Force, five individuals pled guilty in federal court to healthcare fraud and conspiring to commit health care fraud, mail fraud and wire fraud. The individuals are alleged members of a ring that fraudulently billed Medicaid, Medicare, and private insurance carriers more than $30 million. Five alleged members of the ring remain under indictment. Three of the defendants were doctors who allegedly signed medical charts for patients they never treated and prescribed unnecessary medications, procedures, and supplies. The scheme involved the operation of eight fraudulent medical clinics in Brooklyn, as well as the operation of related suppliers of medical equipment, tests, and services. As part of the scheme, the ring allegedly paid cash kickbacks to elderly and financially disadvantaged patients who were insured by Medicare and/or Medicaid, and then billed Medicare and Medicaid for unnecessary medical services, tests, and supplies. (Vullo M. 2018).

DFS partnered with the Brooklyn District Attorney's Office and other state, federal and local agencies in an investigation of 20 individuals, including four doctors and 14 corporations, that were named in an 878-count indictment in December alleging they participated in a massive three-year scheme to defraud Medicaid, Medicare, and other publicly funded insurance providers of approximately $146 million. According to the indictment, the defendants diverted millions of dollars from the publicly funded insurance programs relied upon by vulnerable individuals and used stolen funds to purchase expensive real estate, designer goods and jewelry. As part of the scheme, individuals allegedly were recruited on the street and paid $30 to $40 to go to medical clinics where they received no medical treatment but were given lab tests, after which the defendants would fraudulently bill Medicaid or Medicare. The defendants were charged with enterprise corruption, scheme to defraud, money laundering, healthcare fraud, falsifying business records, offering a false instrument for filing, grand larceny, and scheme to defraud. (Vullo M. 2018).

Insurance fraud is a major problem in the United States at the beginning of the 21st century. It has no doubt existed wherever insurance policies are written, taking different forms to suit the economic time and coverage available. From the advent of "railway spine" in the 19th century to "trip and falls" and "whiplash" in the 20th century, individuals and groups have always been willing and able to file bogus claims. The term fraud carries the connotation that the activity is illegal with prosecution and sanctions as the threatened outcomes. The reality of current discourse is a much more expanded notion of fraud that covers many unnecessary,

unwanted, and opportunistic manipulations of the system that fall short of criminal behavior. Those may be better suited to civil adjudicators or legislative reformers. This survey describes the range of these moral hazards arising from asymmetric information, especially in claiming behavior, and the steps taken to model the process and enhance detection and deterrence of fraud in its widest sense. The fundamental problem for insurers coping with both fraud and systemic abuse is to devise a mechanism that efficiently sorts claims into categories that require the acquisition of additional information at a cost. The five articles published in this issue of the Journal of Risk and Insurance advance our knowledge on several fronts. Measurement, detection, and deterrence of fraud are advanced through statistical models, intelligent technologies are applied to informative databases to provide for efficient claim sorts, and strategic analysis is applied to property-liability and health insurance situations. (Richard A. 2002).

Health insurance fraud detection is an important and challenging task. Traditionally, insurance companies use human inspections and heuristic rules to detect fraud. As the size of databases increases, the traditional approaches may miss a great portion of fraud for two main reasons. First, it is impossible to detect all health care fraud by manual inspection over large databases. Second, new types of health care fraud emerge constantly. SQL operations based on heuristic rules cannot identify those new emerging fraud schemes. Such a situation demands more sophisticated analytical methods and techniques that are capable of detecting fraud activities from large databases. The goal of this paper is to understand and detect suspicious health care frauds from large databases using clustering technique. Specifically, this paper applies two clustering methods, SAS EM and CLUTO, to a large real-life health insurance dataset and compares the performances of these two methods. This paper applies SAS EM and CLUTO to a health insurance dataset to understand the data and detect frauds. Experimental results indicate that CLUTO is faster than SAS EM while SAS EM provides more useful clusters than CLUTO. Clustering has two typical applications. It can be used as a stand-alone tool to get insight into data distribution or as a preprocessing step for other algorithms [5]. This project utilizes clustering as a stand-along tool to understand insurance claim data and group them into clusters. After the completion of this study, we will have some labeled insurance claim records. These labeled data allows us to implement other algorithms. (Peng Y. et al,. 2006).

This article uses case studies to investigate the theft of employee health benefits, a crime most prevalent in the small firm segment of the health insurance market. We argue that this phenomenon reveals new, emerging economic contexts for white-collar crime that need to be conceptualized. Conventional theories of white-collar crime typically focus on corporate settings in well-institutionalized markets. However, the wave of health insurance fraud has emerged in the wake of corporate retrenchment and other market shifts. We use network theoriesto explain how white-collar criminals can position themselves as brokers and exploit a market segment unsettled by several developments: labor market changes that left many workers desperate to secure jobs with benefits; a retrenchment of large providers and other shifts in the health insurance market that made it more difficult for small firms to obtain employee coverage; and the passage of new laws on employee health plans beset with ambiguities and loopholes. We conclude that unscrupulous brokers construct schemes that take advantage of structural and institutional gaps in this market segment. Moreover, we propose that these white-collar criminals' social skills and networks aid them in constructing these deceptions. (Tillman R. and Indergaard M., 2014).

Purpose - While financial fraud against the private health insurance sector in Australia has commonalities to other countries with similar health systems, in Australia fraud against the industry has garnered unique characteristics. The purpose of this article is to shed light on these features, especially the fraught relationship between the private health funds and the public health insurance agency, Medicare and the problematic impact of the Privacy Act on fraud detection and financial recovery. Design/methodology/approach – A qualitative methodological approach was used and interviews were conducted with fraud managers from Australia’s largest private health insurance funds and experts in fields connected to health fraud detection. Findings – The industry profits from a robust regulatory framework, as well as the use of business and clinical rules and strong analytics. However, the sector is not uniform and the problems are not uniform. The fraud managers in the funds have differing approaches to recovery action and this range from police action, the use of debt recovery agencies, to de-recognition from the health funds. Most funds reported a need for more technological resources and higher staffing levels to manage fraud. They all viewed the Privacy Act as an impediment to managing fraud against their organizations and they desired that there be greater information sharing between themselves and Medicare. Originality/value – This paper contributes to knowledge of financial fraud in the private health insurance sector in Australia. Design/methodology/approach – A qualitative methodological approach was

used and interviews were conducted with fraud managers from Australia's largest private health insurance funds and experts in fields connected to health fraud detection. Findings – The industry profits from a robust regulatory framework, as well as the use of business and clinical rules and strong analytics. However, the sector is not uniform and the problems are not uniform. The fraud managers in the funds have differing approaches to recovery action and this range from police action, the use of debt recovery agencies, to de-recognition from the health funds. Most funds reported a need for more technological resources and higher staffing levels to manage fraud. They all viewed the Privacy Act as an impediment to managing fraud against their organizations and they desired that there be greater information sharing between themselves and Medicare. (Flynn K. 2016).

There are a number of strengths in the Australian health insurance system. There is strict provider registration, namely that the provider is the person they say they are and that they have the right qualifications. There are rules in the MBS schedule and the government says that they will pay for these items and no others. There are standardized clinical items which the funds pay both in hospital and in the ancillary sector. The private health insurance industry benefits from good product design and good clinical and business rules in their mainframe systems for the control of fraud waste and waste. In addition private and public health insurance is not liable to pay for durable medical equipment supplies or for home health care, areas that are ripe for exploitation. Despite these attributes there are weaknesses. Fraud compromises the integrity of the private health insurance system, leaching from it millions of dollars every year. There is a lack of awareness among politicians, health administrators, staff in insurance companies and the general public about the scale of the problem. In a sense it is understandable that there is little community engagement with the issue as the idea of embezzlement and police investigations does not rest comfortably with the notion of professions dedicated to the healing arts and the common good. For some funds there are still problems convincing senior management of the technological resources they need. While the private health funds are quietly resigned to a lack of resources they are riled by the inhibitory effect of the Privacy Act on their best efforts at fraud control. They are also disappointed by the lack of a good working relationship with Medicare, as this works to the detriment of the two sectors in dealing with fraud issues, for the same schemes that are used to defraud Medicare are also used to defraud the private health funds. The cost burden of fraud and over servicing is an unnecessary business expense to the funds and the profit shortfall is met with a rise in insurance premiums. Consumers are left unaware that insurance

premiums are inflated to cover the costs of fraud. Fraud can be rationalized as a "business-acceptable risk" however, for those funds that are able to adequately address fraud will gain a competitive advantage. It seems that there is scope for new directions in fraud management by the funds, especially in the following areas, more extensive use of rules in mainframe high tech systems, better clinical and statistical skills for those working in this area, data sharing both between the private and public health insurance sectors, establishing an estimate of the extent of fraud and over servicing, consumer empowerment, identifying and building the tools for fraud detection, and taking effective recovery action when fraud is identified. (Flynn K. 2016).

Fraud can be seen in all insurance types including health insurance. Fraud in health insurance is done by intentional deception or misrepresentation for gaining some shabby benefit in the form of health expenditures. Data mining tools and techniques can be used to detect fraud in large sets of insurance claim data. Based on a few cases that are known or suspected to be fraudulent, the anomaly detection technique calculates the likelihood or probability of each record to be fraudulent by analyzing the past insurance claims. The analysts can then have a closer investigation for the cases that have been marked by data mining software. Database of a Turkish insurance company was used in this research. The database contained detailed claim records as well as other necessary information such as business partners and customers. Anomaly detection analysis was performed on an Oracle system that uses support vector machine (SVM) algorithm. SVM is basically a classification technique that works in a one-class setting where individual records are identified as normal or anomalous (Vapnik, 1995). The system is "trained" to determine that boundary between normal and anomalous records. Then each record is compared with that boundary and is identified either as normal or anomalous. SVM is a kernel-based algorithm where kernel transforms the input data to a high-dimensional space to solve the problem. Oracle 11g Release 1 which was used in this research uses Gaussian (nonlinear) or Linear kernels in data mining process. The linear kernel function reduces the cases to a linear equation on the original attributes in the training data whereas Gaussian kernel transforms the cases to individual points in the n-dimentional space on which it attempts to separate the points into subsets with homogeneous target values. Although the Gaussian kernel uses nonlinear separators, it constructs a linear equation within the kernel space. Linear kernel was used in this research. (Kirlidog M. and Asuk C. 2012).

METHODOLOGY

A systematically searched databases was performed using MEDLINE, PubMed, and Google Scholar, for studies published up to March 15, 2018. Cross-sectional studies and reports issued by government organizations reporting the fraud of health insurance will be eligible for inclusion.

CONCLUSION

Insurance fraud ranks second only to tax evasion as the most costly white-collar crime in America. Most health insurance includes specific benefits, and health insurance fraud practices such as overbilling for the type of services received robs consumers of these benefits. When fraud in the health, life and specialty insurance lines is added, insurance fraud costs could exceed $100 billion a year.

This is why health insurance fraud is such a serious crime. As with all other types of insurance fraud. Violators can spend up to seven years in prison and spend up to $15,000 in fines. There are also many other associated expenses such as court costs and legal fees. Plus, those found guilty of insurance fraud have the stigmas and limitations of being a convicted felon to carry with them for life.

From our review of the literature, there are a number of common types of fraud in the health insurance, which can include

1. Performing medically unnecessary surgeries or treatments to generate higher insurance payments.
2. Accepting kickbacks for patient referrals.
3. Falsifying of tests to justify unnecessary medical actions.
4. Performing an unnecessary or inappropriate service
5. Billing insurers for services that were not rendered, or padding claims with charges for procedures that did not take place.
6. Billing a higher level procedure code than is supported by the record (upcoding, billing for more expensive services or procedures than were actually performed).
7. Billing services, procedures and/or supplies that were not provided.
8. Misrepresenting non-covered treatments.
9. Waiving patient payments (co-pays or deductibles) and charging these costs to the insurer or benefit plan.
10. Billing a patient for more than their co-pay or deductible amount.

11. Billing duplicate claims.

Insured can commit health insurance fraud by

i. Allowing someone else to use his or her identity and insurance information to obtain health care services.
ii. Using benefits to pay for prescriptions that were not prescribed by his or her doctor.
iii. Changing or forging an order or prescription, medical record, or referral form.
iv. Selling prescription drugs or supplies obtained under healthcare benefits.
v. Providing false information when applying for benefits or services.
vi. Using Transportation Services to do something other than going for medical services.
vii. "Doctor shopping" for prescriptions.

Healthcare provider can commit fraudulent acts by

i. Billing for services, procedures and/or supplies that were never rendered.
ii. Charging for more expensive services than those actually provided (Upcoding)
iii. Performing unnecessary services for the purpose of financial gain.
iv. Misrepresenting non–covered treatments as a medical necessity.
v. Falsifying a patient's diagnosis to justify tests, surgeries, or other procedures.
vi. Billing each step of a single procedure as if it were a separate procedure.
vii. Charging a patient more than the co–pay agreed to under the insurer's terms.
viii. Giving false information about credentials such as a college degree.
ix. Billing non-covered services as a covered code.
x. Prescription drug switching.
xi. Billing for services not provided.
xii. Providing services that are not medically necessary.

RESULT

The health insurance fraud occurs from insured and healthcare provider. Fraud may be committed by different parties involved in insurance transactions: applicants for insurance, policyholders, third-party claimants and professionals who provide services. Common frauds include "padding," or inflating actual claims; misrepresenting facts on an insurance application; submitting claims for services or procedure that never occurred or delivered. In this type of fraud, false or misleading information is provided to a health insurance company in an attempt to have them pay unauthorized benefits to the policy holder, another party, or

the entity providing services. The offense can be committed by the insured or the provider of health services. Unfortunately, insurance fraud remains a serious problem that doesn't show signs of slowing down.

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