



**Australian Fraud Forum  
November 16, 2012  
Ted Doyle**

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**Ted Doyle**  
**Vice President, Fraud Analytics**  
**UnitedHealth Group/OptumInsight**

***Disclaimer: Information presented has been gathered independently by Ted Doyle from industry sources and publications which does not reflect the opinion of OptumInsight or the UnitedHealth Group***

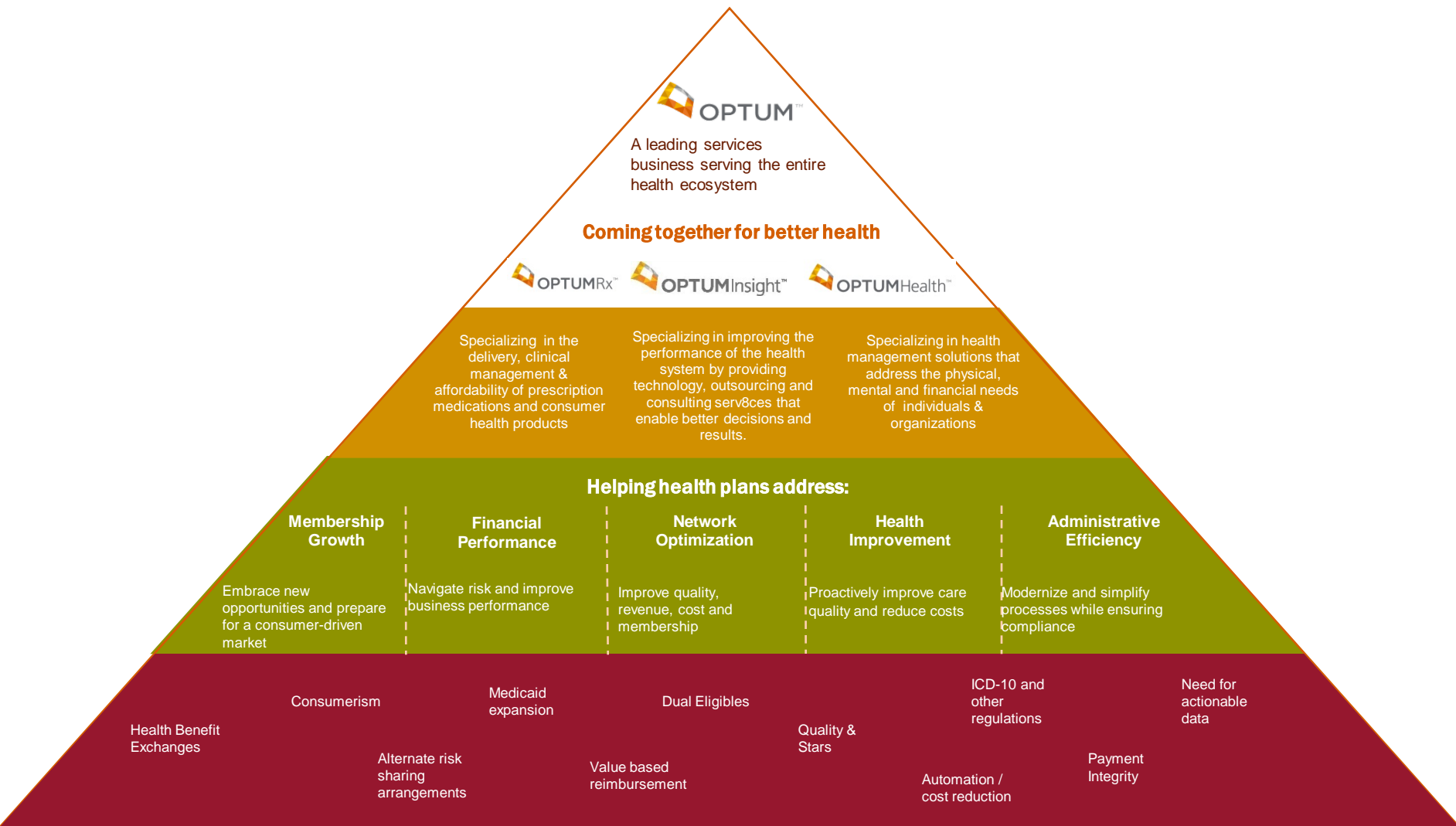
# Presenter: Ted Doyle, CFE, AHFI, PI

## UHG/Optum, Advanced Analytics Lab

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- Vice President, Fraud Analytics Client & Industry Innovation
- 28 years health care insurance industry experience
  - Main focus: Detection and prevention of health care fraud & abuse
- Extensive industry experience – public and private sectors
  - US Federal Agency, Centers for Medicare & Medicaid Services
  - Transamerica, Occidental, WellPoint, and UnitedHealth Group
  - Consulted for other commercial, federal and state health plans
- Company representative – Healthcare Fraud Prevention Partnership
  - Private/Public Sector partnership for detection & prevention of HC fraud
- Advisory Board Member, BNA Health Care Fraud Report
- Member of AHIP National Health Care Fraud Workgroup
- Accredited Health Care Fraud Investigator (AHFI) – NHCAA
- Certified Fraud Examiner (CFE) – ACFE
- Private Investigator, State of California

# Optum and Our Key Services



# Our Solutions

## Risk Optimization & Growth

## Operational & Administrative Efficiency

## Clinical Performance & Compliance

## Clinical Community & Networks

### SOLUTION SUMMARY

Solutions that help a payer achieve improved membership growth/retention, risk selection, and financial management which lead to better outcomes and organizational profitability.

Solutions that advance a payer's compliance with regulatory requirements and/or enhance a payer's operational performance and reduce unnecessary medical and administrative costs by addressing inefficiencies across the business cycle.

Solutions that improve the performance of a payer's care management and delivery capabilities via clinical strategies, assessment, and analytics in order to optimize clinical cost and care.

Solutions that help a payer achieve improved network management and provider relations by utilizing data intelligence, analytics, and reporting.

### KEY SOLUTIONS

- Exchange Strategy
- Rapid Product Prototyping
- Consumer Experience
- Distribution Strategy
- Interactive Marketing & Design
- Financial Advisory & Actuarial Services
- StepWise Automated Rating

- Prospective and Retrospective Fraud Detection and Recovery
- Subrogation and COB
- Credit Balance and Data Mining
- Operations Performance Improvement Consulting
- ICD-10/5010 Compliance
- Provider Credentialing

- Clinical Compliance and Analytics Tools
- Clinical Strategy and Assessment
- Government Program Solutions (STARS, RAF, HEDIS)
- CMS Compliance Solutions
- Population Management Solutions
- EBM and Episode/Procedural Groupers

- Network Data Intelligence
- Contracting Analytics and Strategy
- Bundled Payment and P4P Solutions
- Network Management Tools
- Provider Engagement Solutions
- Collaborative Care Strategies
- Tiered and Specialty Network Development
- Health Information Exchange

# Optum Prospective Services

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## Prospective Detection Services

- ✓ Apply Optum analytics to prepaid claims data for payers who want to utilize their own investigation capabilities. Identifies abusive billing behavior before payments are made.

## Prospective Detection and Investigation Services

- ✓ Our Prospective Detection Services combined with case and clinical investigation capabilities. Payer receives timely responses advising to pay or deny claims before payments are made.
- ✓ Our pre-payment process is a sophisticated rules and policy based detection system. The detection and investigation process is designed to integrate and to work concurrently with clients' production claims processing system to identify potential fraud and abuse.

# Optum Retrospective Services

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## Retrospective Abuse Detection Services

- ✓ Postpaid detection through Optum data analytics. Provide payers with analytic intelligence so that they may investigate abusive billing behavior to identify overpayment opportunities. This resulting lead information can then be used to build cases by the payers special investigations unit.

## Retrospective Abuse Detection, Investigation, and Recovery Solutions

- ✓ Identify and validate overpayment opportunities through analytics and retrospective case investigation. Provides payers with actionable information that can be used for overpayment recovery, or for future network contracting and rate setting.

## Fraud Detection Services

- ✓ Identify and investigate potentially fraudulent provider billing activity through Optum analytics and retrospective case investigation. Provides payers with comprehensive compliance resources through use of Optum's compliance regulations database. Our compliance resources track federal and state Medicare, Medicaid and Commercial insurance compliance requirements. In addition; we can assist with fraud plan creation, as well as state regulatory or CMS audits.

# Optum™ and SAS® Strategic Partnership

## Partnership Description

Optum, an industry leader in health care payment integrity solutions, and SAS, the leader in analytics technology, have joined in a partnership to *offer integrated health care fraud, waste and abuse analytics services to the US market.*

## Solution Description

This solution includes detection, investigation, case development and recovery services that provide commercial, Medicare Advantage, and Medicaid health plans a flexible approach to fraud identification, recovery and prevention.

## What's the Benefit to Health Plans?

Drives Payment Integrity Performance

- Flexible, scalable approach with no software to install or maintain
- Reduces medical and administrative costs
- Increases detection with Optum proprietary analytics
- Provides access to extensive clinical, investigative and recovery resources
- Reduces false positives for improved efficiency and decreased provider abrasion

## What Comprises this Unique Integrated Fraud Solution?

Proven capabilities from two industry leaders in fraud, waste and abuse detection and prevention.

<b>SAS® Capabilities</b>	<b>Optum™ Capabilities</b>
SAS® Fraud Framework	Extensive Health Care Claims and Fraud Case Dataset
Rule and Analytic Model Management	Proprietary Analytics
Fraud Data Management	Broad Suite of Fraud, Waste and Abuse Service Capabilities
Text Mining and Social Network (Link) Analysis	Deep Fraud Expertise: Clinical, Investigative and Recovery



# International Fraud Trends

# The Global Market for Fraud, Waste & Abuse

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## The Scale of the Problem Internationally

- Health care FWA estimated to represent 3% to 8% of health system spending - mean =**5.59%**
- Private payers experience FWA rates as low as 1.5% because of more aggressive use of both pro- and retrospective detection and recovery efforts
- Public payers experience FWA rates as high as 10% because of reliance on retrospective “pay-and chase” recovery efforts. (e.g. US Department of Justice spent \$1.13 billion to recover \$1.48 in 2008)
- Evidence suggests that lower and middle income countries experience higher rates of FWA (however reduction efforts may be more difficult)

# The Financial Cost of Fraud and Error

## Global research 2011 (1998 – 2009 data)

- Sample-based, statistically valid, accurate measurement of the total cost – not merely detected fraud
- Across \$1.6 trillion of expenditure
- 15 different types of expenditure / 79 loss measurement exercises / 33 organisations
- 6 countries – UK, United States, France, Belgium, Netherlands, New Zealand
- **Average losses = 7.29%**
- **100% of the exercises showed losses of greater than 3%**
- 59% showed losses of 3 – 8% / 41% showed losses of greater than 8%



\* 'The Financial Cost of Healthcare Fraud 2011' - University of Portsmouth and PKF (UK) LLP 2011

# Reducing the losses

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Global research 2011 (data from 1998 – 2009)\*:

- Rates of reduction (where losses have been measured in a statistically valid and accurate manner) range from 6.25% – 32% per year
- Examples of up to a 40% reduction within 12 months
- Examples of up to a 60% reduction over a longer period
- The average rate of reduction is just over 10% per year

\* 'The Financial Cost of Healthcare Fraud 2011' - University of Portsmouth and PKF (UK) LLP 2011

# FWA - International market

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- Many healthcare organizations “in denial” on healthcare fraud
- Fear of reputational damage outweighs understanding of potential financial benefits
  - Counter fraud services have primarily been sold as reactive or detective (i.e. after losses have been incurred) and ...
  - The focus has been on activity not outcomes and there has been a lack of awareness of the potential financial benefits
  - Counter fraud work has been seen as cost not investment in a greater return
- **This is changing:**
  - Recession & economic factors have helped with need recognition
  - Gradually greater understanding that fraud can be measured and managed like any other business cost
  - Because cost of fraud has direct negative impact on patient care = , strong drivers to do something about it
  - Global and Regional networks emerging (GHCAN, NHCAA, CHCAA, HICFG, EHFCN, South African HFMU, GHAFSA)

# US Healthcare Stats & Fraud National Trends

# How Big is the US Problem?

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- NHCAA estimates HC fraud = \$10s of billions of dollars per year
- Other Facts
  - **US Institute of Medicine** of the National Academies estimates health care fraud at \$75 billion a year (2012)
  - **FBI** estimates loss between \$78 billion and \$260 billion (2011)
  - ***Journal of the American Medical Association*** (JAMA) estimates loss between \$82 billion and \$272 billion (2011)
  - **CMS** estimates US Medicare and state based Medicaid loss = \$70B in “improper payments” for FY 2010
  - April 2012 study by **RAND Corporation** analyst and a **former CMS administrator** (published in *JAMA*) estimated that fraud and abuse cost Medicare and Medicaid as much as \$98 billion in 2011
  - **JAMA** study in 2000 found 54% of physicians reported "using deception of 3<sup>rd</sup> party payers to obtain needed benefits"

# NHCAA Anti-Fraud Management Survey

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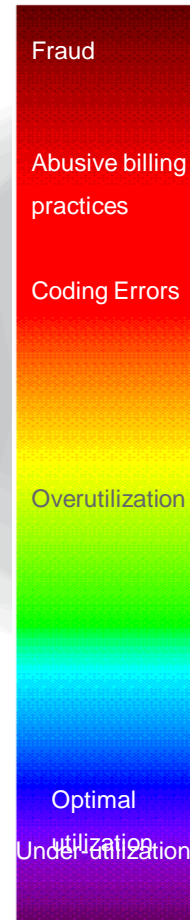
## NHCAA Member Company Management Survey – CY2011

- Average Health Insurance company SIU realized combined fraud recoveries, savings and prevented losses totaling over \$22.9M/year based upon average budget = \$1.95M
- Average SIU staff = 20 FTEs
- Average recoveries = nearly \$5.3M
- Average savings = more than \$13.8M
- Average prevented losses = almost \$7.7M
- Average number of open cases or investigations = 396
- Average number of cases handled by a US based SIU = 936



# The Scope of Fraud, Waste and Abuse

- Coding enhancement
- Unnecessary services
- Misrepresentation
- Masking
- Duplication of Services
- Services not Rendered
- Nonexistent Healthcare Providers
- Stolen member-eligibility (lists)
- Inappropriate billing by practitioner type
- Provider kickbacks
- Unbundling of claims



# US Top Ten Fraud Trends

Benefit Type	Fraud Scheme
<p><b>Prescription Drug Services</b></p>	<p>“Drug Seeking” patients are doctor-shopping to obtain multiple medically unnecessary prescriptions, causing benefit payments to increase but also causing health risks for Payer member populations, which translates to increased cost for medical care. Insurers lose between \$8.6M and <b>\$857M a year</b> depending on plan size.</p>
<p><b>Ambulance Transportation to Nowhere</b></p>	<p>Ambulance and Van services where no other office visit, ER or Inpatient services provided at same time. In a 2006 OIG report, Medicare was found to have <b>improperly paid \$402M</b> for ambulance services that were not rendered or medically necessary.</p>
<p><b>Infusion Therapy (IV Therapy)</b></p>	<p>Medicare has identified over \$2B in suspect payments for IV Therapy associated with false AIDS diagnosis between 2002 and 2011. This represents on average <b>\$222M a year</b>.</p>
<p><b>Medical Identity Theft</b></p>	<p>With the proliferation of Medical Identity Theft, Payers need to identify groups of patients who appear to be shared across multiple providers or provider networks. Medicare identified over 100,000 member IDs compromised (sold) and over \$1B in savings for claims denied associated with compromised member info between 2002 and 2011, representing on average <b>\$111M a year</b>.</p>
<p><b>Independent Diagnostic Testing Facilities</b></p>	<p>Medicare alone allowed almost \$1 billion for IDTF claims for 2.4 million beneficiaries in 2010</p>

# US Top Ten Fraud Trends

Benefit Type	Fraud Scheme
<p><b>Payments to excluded, sanctioned or phantom providers</b></p>	<p>Medicare allowed close to <b>\$41M</b> for medical equipment and supply claims with invalid, inactive or deceased referring physicians or for services ordered by non-physicians.</p>
<p><b>Home Health Services</b></p>	<p>Medicare spending for Home Health Services has increased 81% since the year 2000</p>
<p><b>Spike Billing</b></p>	<p>Payers need to ID spike billing over a rolling 12-month average but also month-to-month spikes that don't make sense based upon peer and/or geographic trends. No prosecutorial case information or Regulatory reports have been produced for this trend</p>
<p><b>Services while Inpatient</b></p>	<p>Public and Private sector Payers have seen an increase in suspicious/fraudulent billing for outpatient services while the patient is in a Facility setting. SIU/Analytic presentations at the annual training conferences for the US National Health Care Anti-Fraud Association, United Kingdom Health Insurance Counter Fraud Group and the European Union Health Care Fraud and Corruption Network addressed this trends as a significant concerns for new health care fraud.</p>
<p><b>Cosmetic Services – Dental, Vision, Medical</b></p>	<p>Medically unnecessary cosmetic procedures, misrepresented (coded) as medically necessary procedures. No prosecutorial case information or Regulatory reports have been produced for this trend.</p>

# Next Steps

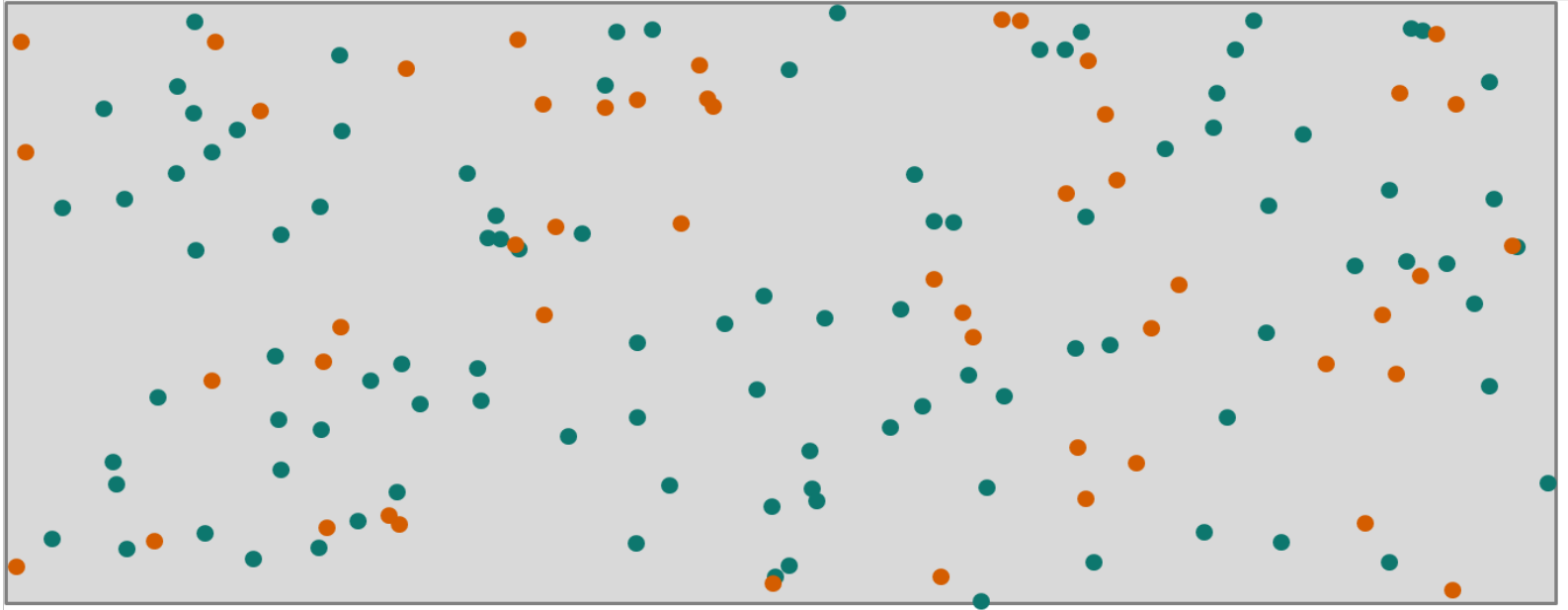
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## **FWA Trends & International Focus Require**

- **Advanced Analytics and Hybrid Approach**
- **New Approaches to Data Analysis and Review of Service Utilization**

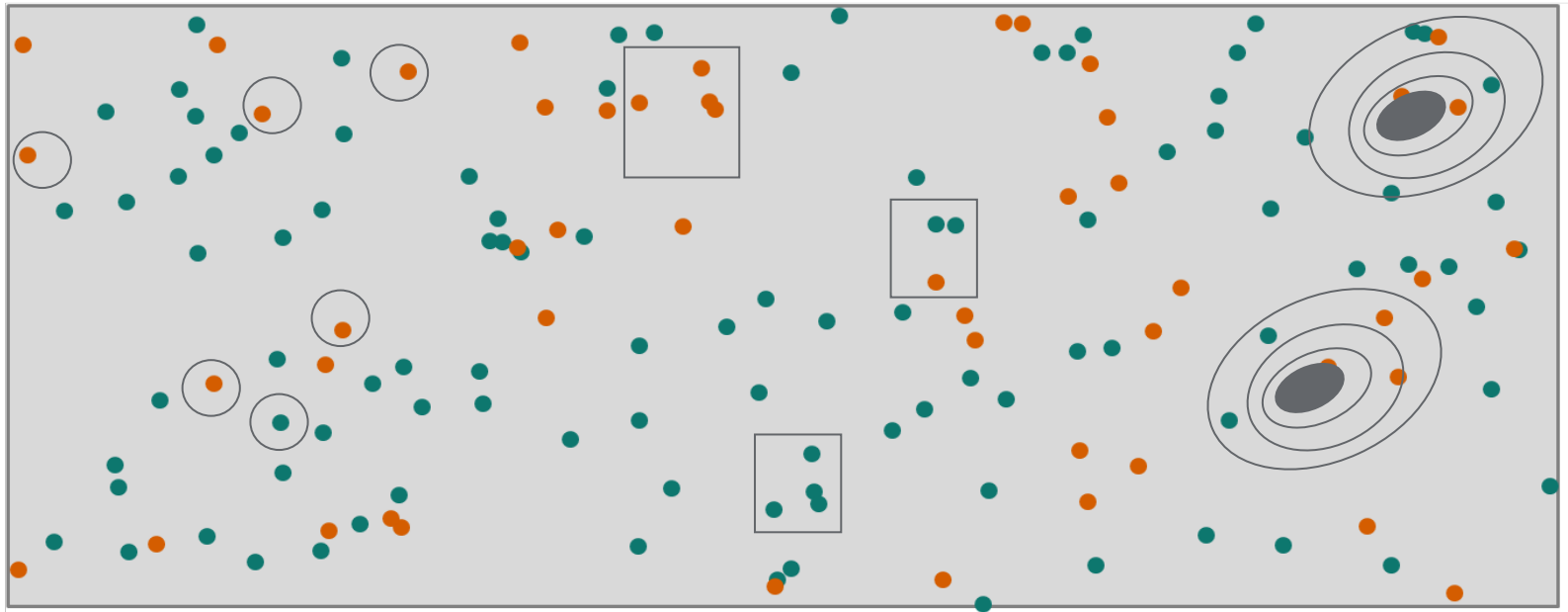
# Fraud Detection: Challenges

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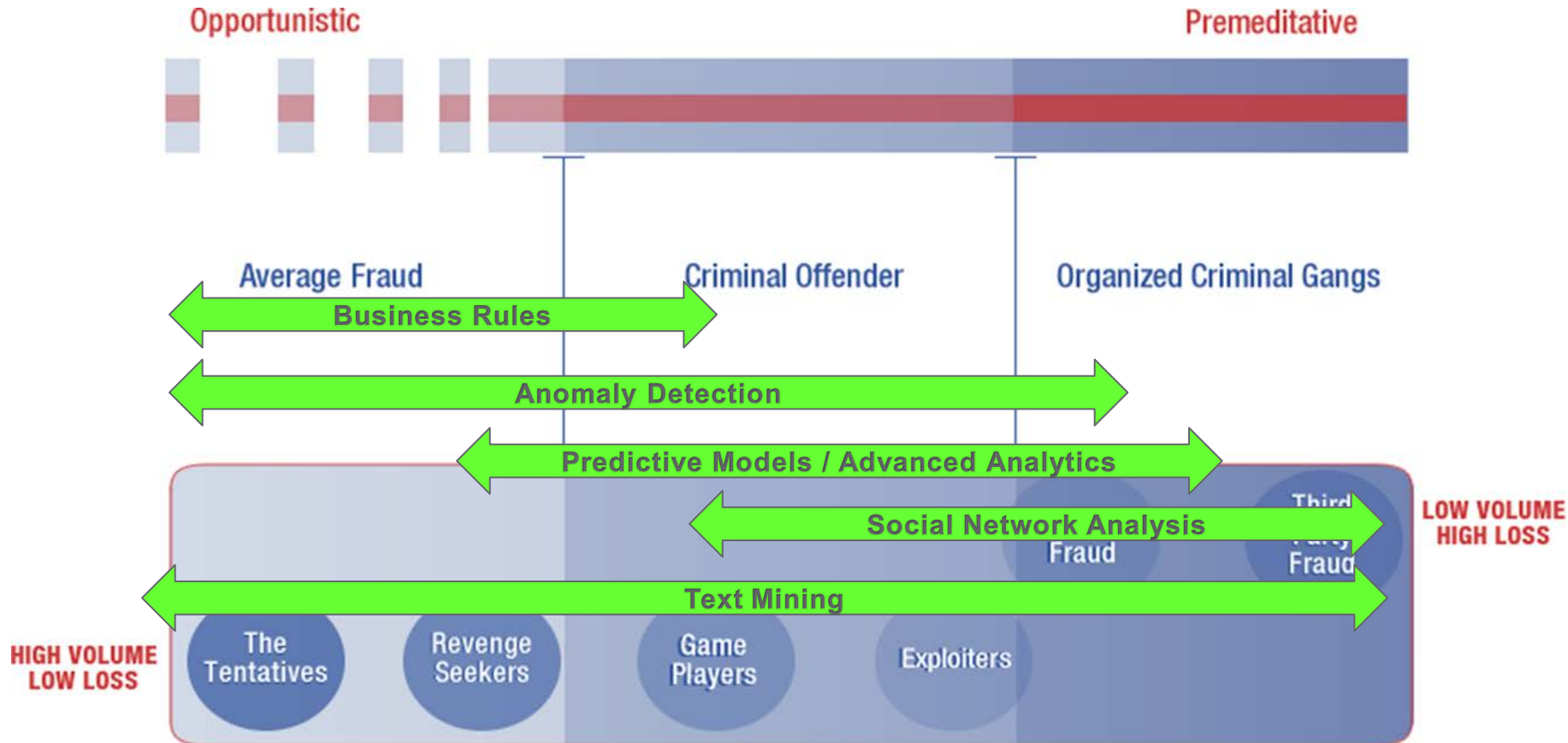
- This space represents the universe of claims.
- Manual clinical review is impossible for entire space.
- Goal: Stop as many oranges (frauds) for review as possible while keeping the number of greens (non-frauds) identified to a minimum

# Flags, Rules and Variables



- Flags – providers identified who have demonstrated a fraudulent pattern historically or are otherwise unfit to provide service
- Rules – clinical experts identify medically unlikely scenarios at the claim level
- Variables / Models – potentially fraudulent patterns quantified continuously

# NEED FOR MULTIPLE ANALYTICAL METHODS



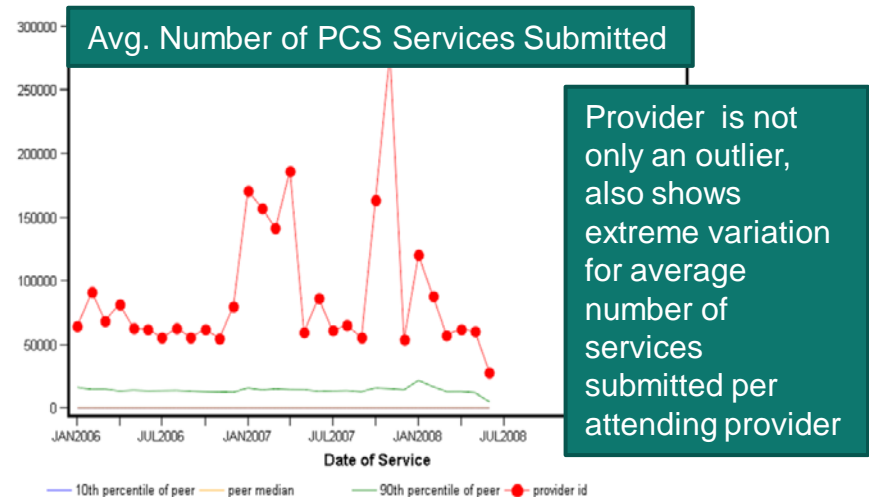
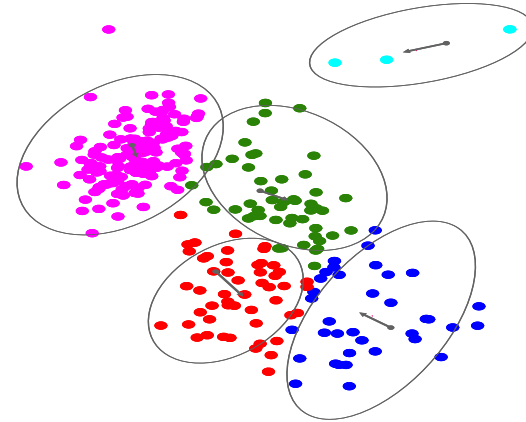
# Analytical Approach – Business Rules

Health Care Scenarios/Model Examples	
1	Claims less than xx months of policy inception
2	Increase in coverage less than xx months of claim
3	Clinic/hospital distant from claimant's home address for routine care
4	Bills are billed on holidays and weekends
5	Physician's diagnosis not consistent with treatment
6	Value of charges for procedure is excessive
7	Same drug prescribed for multiple family members
8	Doctors treatment always the same despite different injuries/accidents
9	Medication prescribed out of line with physician speciality
10	Doctor bills for emergency anaesthesia but hospital stay was non-emergency



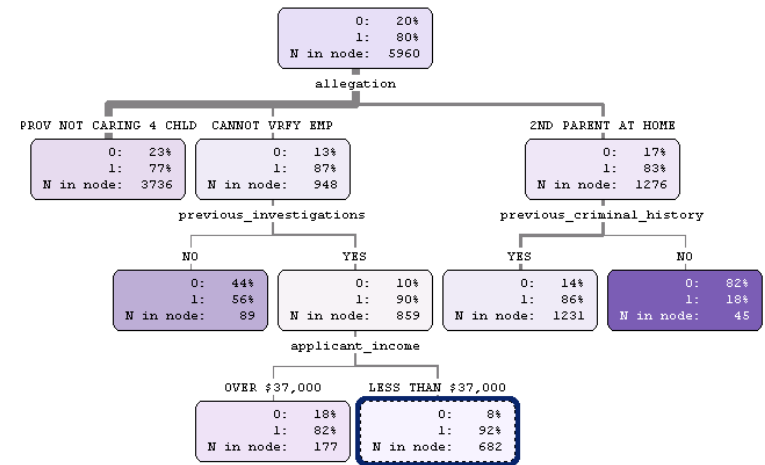
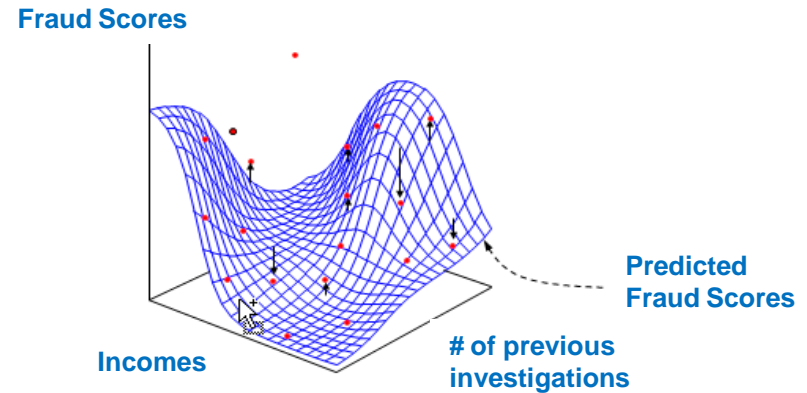
# Analytic Approach: Unsupervised Methods (Anomaly Detection)

- Use when no target exists
- Examine current behavior to identify outliers and abnormal transactions that are somewhat different from ordinary transactions
- Include univariate and multivariate outlier detection techniques, such as peer group comparison, clustering, trend analysis, etc.



# Analytic Approach: Supervised Methods (Predictive Models)

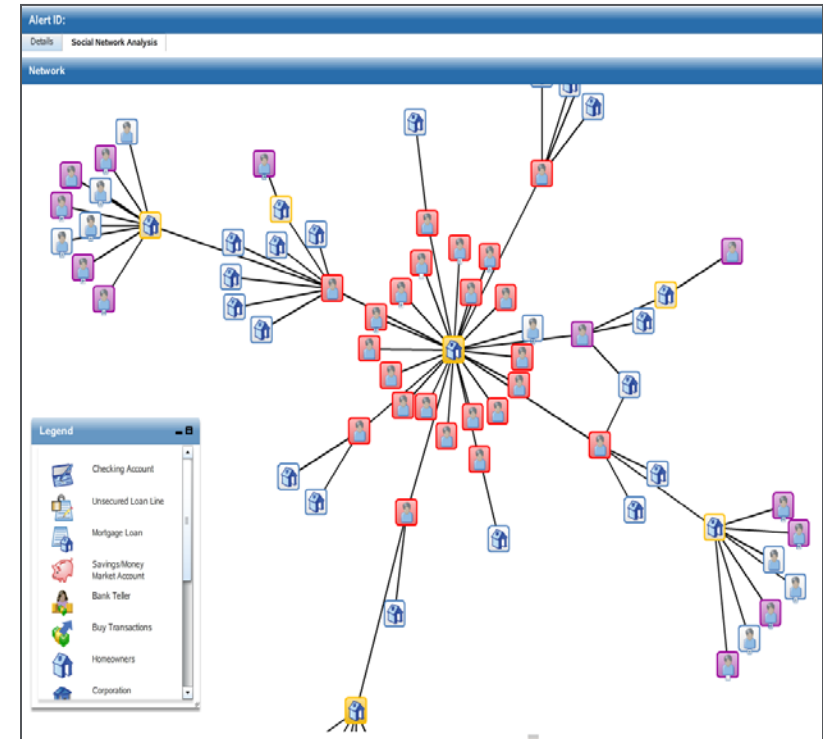
- Use when a known target (prior fraud) is available
- Use historical behavioral information of known fraud to identify suspicious behaviors similar to previous fraud patterns
- Include parametric and nonparametric predictive models, such as generalized linear model, decision tree, neural networks, etc.



# Target Identification

## Social Network (Link) Analysis

- Network scoring
  - Rule and analytic-based
- Analytic measures of association help users know where to look in network
  - Net-CHAID for local area of interest (node) in the network
  - Density, Beta-Index (network)
  - Risk ranking with hypergeometric distribution, degree, closeness, betweenness, eigenvector, clustering coefficients (node)
- Modularity (sub-network)



# Text Mining (Unstructured data)

- Up to 80% of insurer data is unstructured text
- Configurable parsing, tagging, and extracting of free text for use in fraud analytics
- Combine quantitative and qualitative data with text analysis to improve predictions

The screenshot displays the 'Text Miner - Interactive' application interface. It is divided into several panes:

- Documents:** A table listing analyzed documents with columns for TEXT, URI, NAME, LANGUAGE, TRUNCATED, OMITTED, EXTENSIONS, and CREATED.
- Terms:** A table showing the frequency of terms across documents.
 

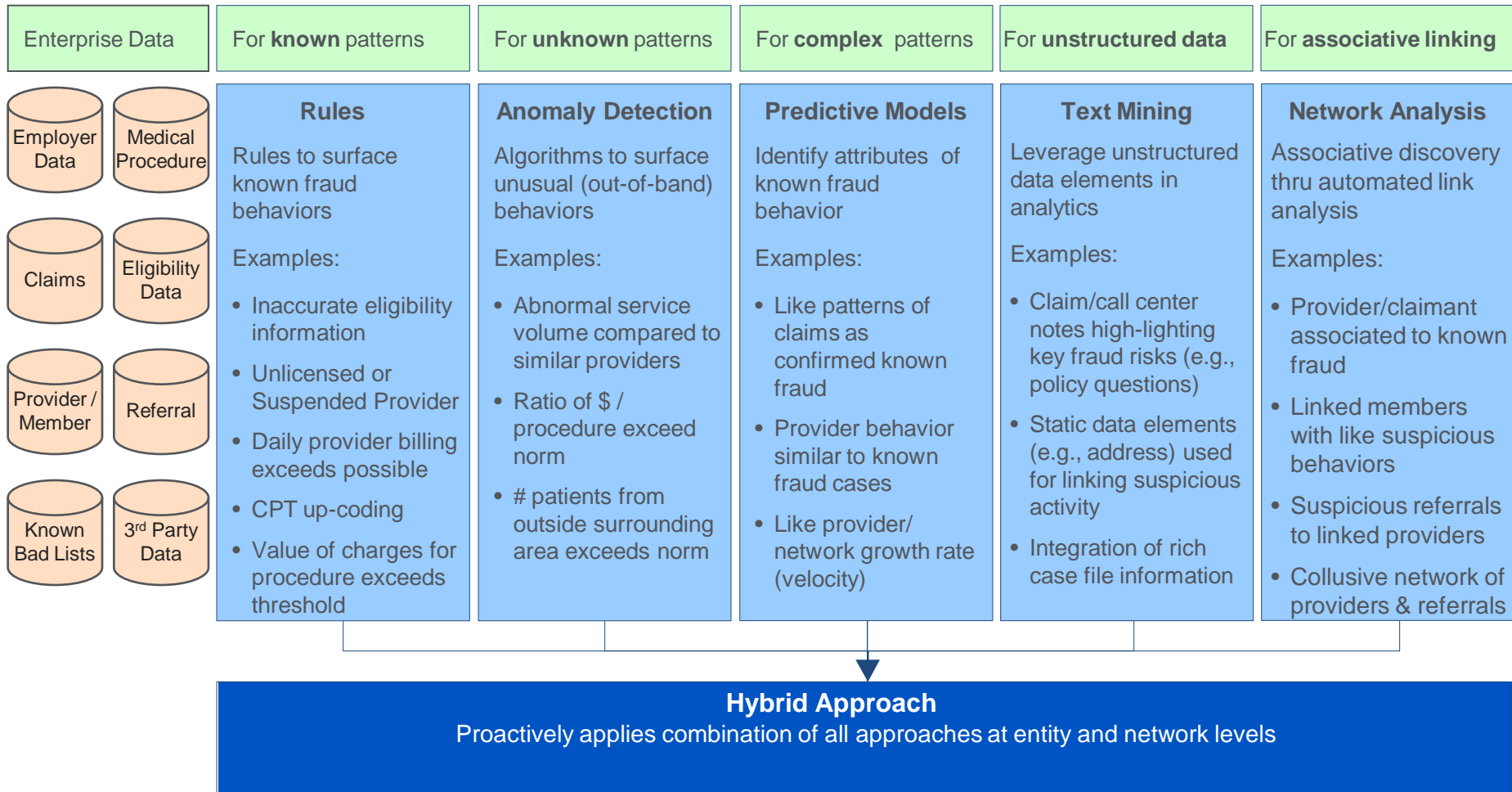
TERM	Freq	# Docs	Keep	WIDTH	Role	Attri
daughter	34	31	<input checked="" type="checkbox"/>	0.519	Noun	Alph
job	34	31	<input checked="" type="checkbox"/>	0.519	Noun	Alph
television	37	31	<input checked="" type="checkbox"/>	0.52	Noun	Alph
life	32	30	<input checked="" type="checkbox"/>	0.521	Noun	Alph
hello	33	30	<input type="checkbox"/>	0.522	Interj	Alph
husband	42	32	<input checked="" type="checkbox"/>	0.522	Noun	Alph
last	26	26	<input checked="" type="checkbox"/>	0.527	Adv	Alph
team	29	29	<input checked="" type="checkbox"/>	0.522	Noun	Alph
- Clusters:** A list of clusters with descriptive terms and their frequencies.
 

#	Descriptive Terms	Freq
1	+ page, + read, + problem, + keep, + find, as, + would, + home, thank you, can, + service, + see, now, + computer, + want	74
2	+ representative, + center, support, + college, + late, + box, down, + line, + hook + day, + web tv, thank you, in, web, + would	12
3	long distance, + long, distance, local, + area, + call, + number, + phone, yeah, + do, when, now, um, + see, + call	26
4	+ come, + day, + time, + good, + give, when, all, with, in, but, but, + see, + know + not, out	70
5	area code, + area, code, local, + number, yes, with, + time, in, on, all, + see, + s service, + tv, thank you	80
6	uh, + cancel, + well, no, + will, well, yeah, with, web, + would, um, thank you, + web tv, + do, yes	94
7	+ credit card, + card, + credit, + cancel, + pay, um, + service, + will, yes, + want h, yeah, no, + have, on, + not	161
8	+ address, + cancel, + pay, + number, + phone, yes, + card, no, now, + not, + s service, well, out, can, + do	99
9	+ call, all, + see, up, but, + do, now, out, + not, + want, with, when, + would, + h ave, but	287
10	+ line, same, + problem, + thing, + phone, + card, when, like, out, but, + month, + will, on, up, but	17
11	web, + tv, + web tv, um, thank you, + computer, up, on, see, + not, + have, + mo	30
- Concept Linking:** A network diagram showing relationships between terms. 'circuit' is a central node connected to 'free', 'buy', 'interest', 'delin', '+ store', '+ good', '+ busy', 'circuit city', '+ city', 'local', 'compatible', '+ purchase', 'with', 'printer', 'access', and 'herwell packard'.

Text Mining (e.g., call center logs or doctor's notes)

# “Tools” - Advanced Analytics Required

*Using hybrid analytics for fraud detection*

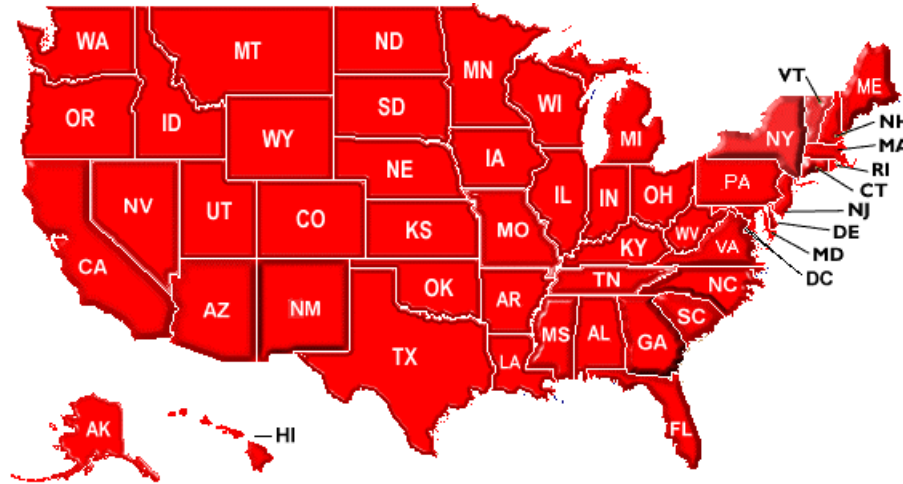


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# Use of Prevalence Data in Fraud Detection

# Epidemiology = Useful Tool in Investigation

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## Examples:

- 25.8 million children and adults in the United States—8.3% of the population—have diabetes
- 16.3% of the U.S. adult population—have high total cholesterol
  - Level defined as high total cholesterol is 240 mg/dL and above
- Diseases are common and usually evenly distributed amongst Primary Care Physicians

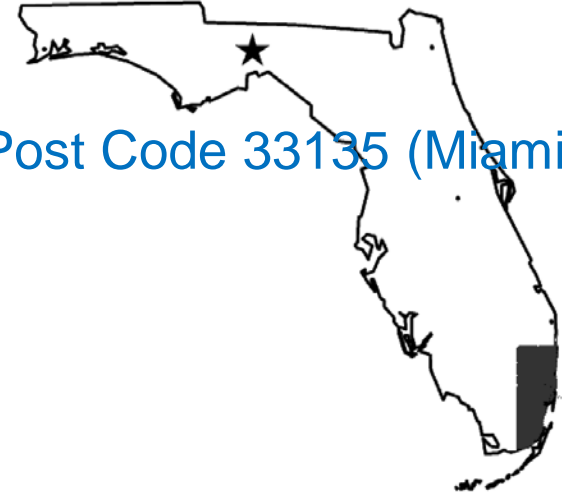
# Use of Prevalence Data - Background

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- Period Prevalence Rate is all cases whether old, new or recurrent, arising over a defined period, either one or two years. The denominator is the average population over the period (or mid-point estimate)
  - Specific rates permit rational and easy comparison of disease patterns in different places and times for they can be directly compared with each other
  - There may be some regional variation but extremes are worrisome either for fraud/waste/abuse or an epidemic that merits public health investigation
- Prevalence values are additive as the population is the common denominator
- ICD-10 has greater coding precision for many conditions when compared with ICD-9 diagnosis coding



# Example—Dx 357.81, Chronic Inflammatory Demyelinating Polyneuritis (CIDP)



- Core Based Statistical Area (CBSA) for US Post Code 33135 (Miami, Florida)
- Population-- 5,531,060
- 1695 Family Practice Physicians in CBSA\*
- Prevalence of CIDP: 1 case per 10,000
- Expected CIDP cases in CBSA—553
- Insurer's Florida Medicare membership 583,000
- Expected CIDP cases in Insurer's population—583
- A single provider (Family Practice) was treating **9 individuals** in his practice for CIDP using high dose intravenous immunoglobulin

\* [http://www.doh.state.fl.us/Workforce/Workforce/Annual\\_Reports/PhysicianWorkforce\\_Nov2010.pdf](http://www.doh.state.fl.us/Workforce/Workforce/Annual_Reports/PhysicianWorkforce_Nov2010.pdf)

# Example—Dx 357.81, Chronic Inflammatory Demyelinating Polyneuritis (CIDP)

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- This doctor has 2% (9/553) of ALL CIDP cases in this entire CBSA & 20% (9/58) of all expected CIDP cases in the insurer's Florida M&R market!
- Incidentally 4 other doctors (also Family Practitioners), had an additional 3% (17/583) of ALL cases in the CBSA and 30% (10/58) of the expected CIDP cases in the insurer's Florida M&R market!
- This concentration of patients with CIDP would not be expected for a Family Practitioner
  - All patients were receiving IVIG administered in high dosage
  - The practices were clinics rather than specialists
- Review of records revealed diagnosis and treatment were both fabricated with substantial recovery

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# Provider Morphing

# Provider Morphing: Definition

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- Helps identify providers that may be abusing the payer system
- Compares distribution of billed procedure codes across two time periods, weighted by paid dollars
- Large changes/swings may indicate *evolution* of fraud schemes

## Studying Provider behavior over time

- Patterns of provider behavior suggest fraud schemes
- Once a fraud scheme identified, it can be stopped (or minimized)
- Fraudsters have financial incentive to adjust billing practices to evade detection and maximize revenue
- For “Fraudster” group, when one “bad” behavior stops, new “bad” behavior likely starts
- Traditional methods of fraud detection offer few clues as to what that new bad behavior will look like

# Provider Morphing: Sample Results

Provider	Procedure	Procedure Description	Current Quarter	Previous Year
Clinic XYZ	1992	ANESTH, N BLOCK/INJ, PRONE	\$36,876	\$9,548
Clinic XYZ	1935	ANESTH, PERC IMG DX SP PROC	\$26,317	\$0
Clinic XYZ	1810	ANESTH, LOWER ARM SURGERY	\$13,650	\$0
Clinic XYZ	1630	ANESTH, SURGERY OF SHOULDER	\$20,648	\$0
Clinic XYZ	1480	ANESTH, LOWER LEG BONE SURG	\$16,745	\$4,445
Clinic XYZ	1400	ANESTH, KNEE JOINT SURGERY	\$20,283	\$4,793
Clinic XYZ	952	ANESTH, HYSTEROSCOPE/GRAPH	\$23,806	\$0
Clinic XYZ	840	ANESTH, SURG LOWER ABDOMEN	\$21,681	\$0
Clinic XYZ	810	ANESTH, LOW INTESTINE SCOPE	\$28,955	\$16,190
Clinic XYZ	797	ANESTH, SURGERY FOR OBESITY	\$10,367	\$0
Clinic XYZ	790	ANESTH, SURG UPPER ABDOMEN	\$35,330	\$0
Clinic XYZ	740	ANESTH, UPPER GI VISUALIZE	\$34,504	\$8,709
Clinic XYZ	670	ANESTH, SPINE, CORD SURGERY	\$8,253	\$0
Clinic XYZ	630	ANESTH, SPINE, CORD SURGERY	\$8,362	\$0
Clinic XYZ	160	ANESTH, NOSE/SINUS SURGERY	\$23,299	\$0



Above, a suspicious *Total Paid* discrepancy of over 5 times the previous year's paid amount.

Data is grouped by provider to highlight changes in behavior. *Current Quarter* and *Previous Year* show the discrepancy in paid amounts year-over-year for a given quarter.

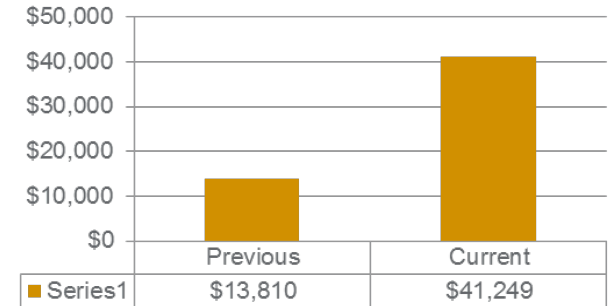
The table above shows significant change in the type and volume of procedures performed.

# Provider Morphing Examples

Provider and CPT Paid Amount information

Provider	Procedure	Procedure Description	Previous Year	Current Quarter
Provider A	76942	ECHO GUIDE FOR BIOPSY	\$0	\$5,625
Provider A	64484	INJ FORAMEN EPIDURAL ADD-ON	\$0	\$5,886
Provider A	64483	INJ FORAMEN EPIDURAL L/S	\$0	\$14,398
Provider A	64479	INJ FORAMEN EPIDURAL C/T	\$0	\$3,223
Provider A	27096	INJECT SACROILIAC JOINT	\$29	\$3,173

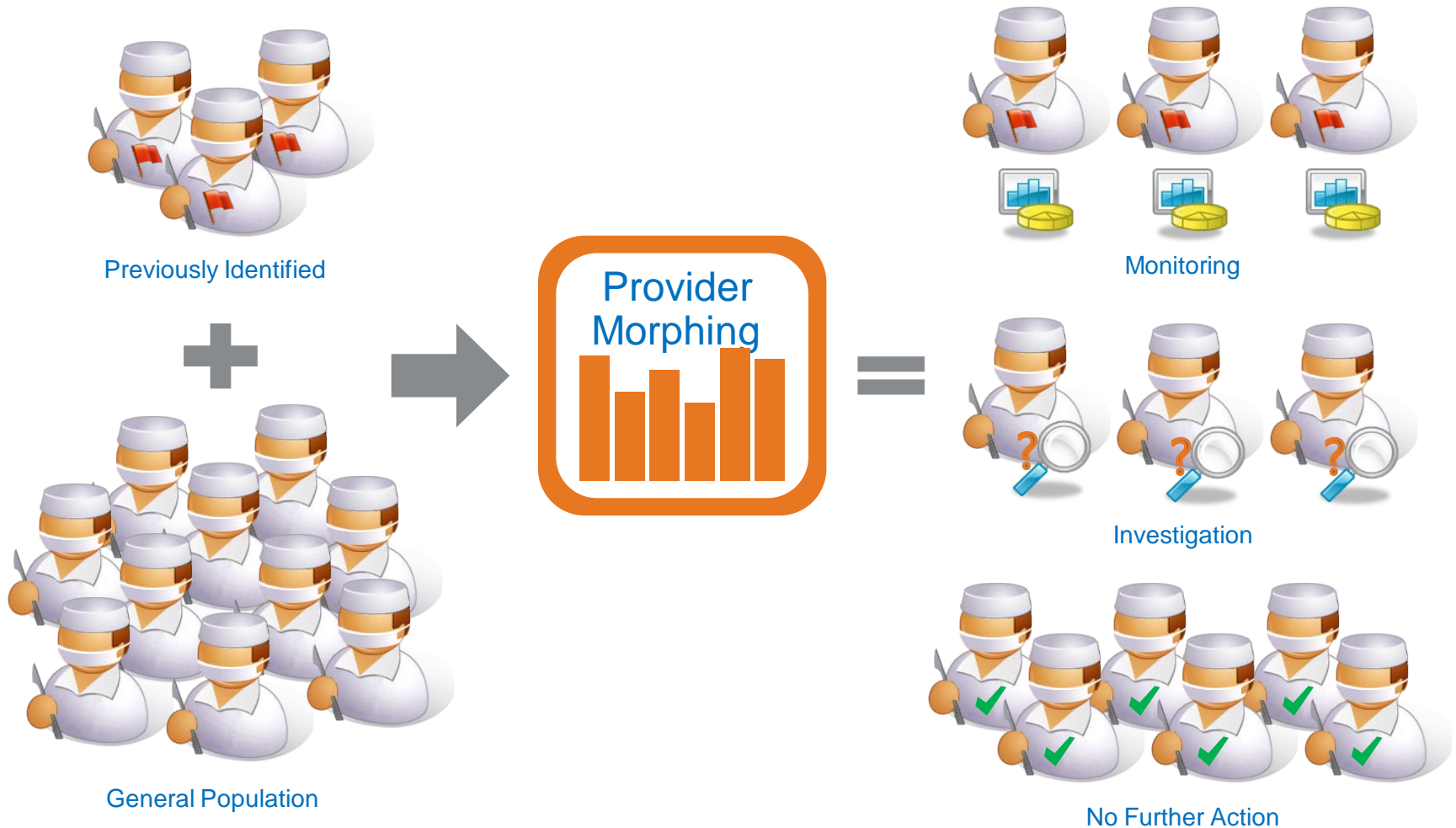
Total Paid Amount comparison



- **Physiatrist listed as Medical Director of a spa that recently went out of business. DO and DC training**
- **54% increase in patient volume, 78% increase in codes billed/pt visit in current year with spike in echo guided biopsy and epidural/SI injections**
- **Significant increase in submission of claims in current period**
- **Physical therapy and Chiropractor in practice with provider**

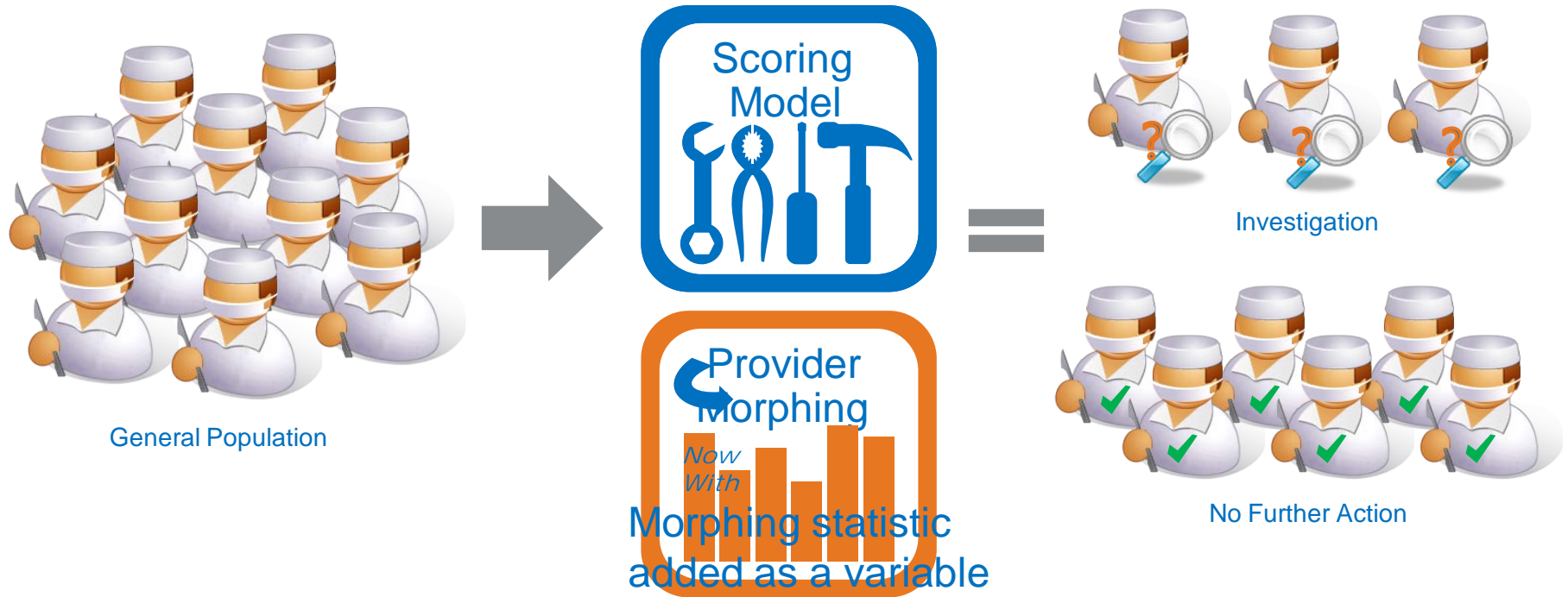
# Provider Morphing: Applications

- Flag Management



# Provider Morphing: Applications

- Prospective Scoring Model





# Provider Morphing Summary

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- Provider Morphing identifies potential aberrant behavior. It has potential application as:
  - Retrospective analysis tool to find suspicious behavior that would require additional investigation
  - Retrospective tool to ensure compliance for providers who have agreed to modify certain billing behaviors
  - Prospective flag that would allow the pending of claims subject to further analysis of medical records

# Facility Based Predictive Scoring Model

# Facility Example

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- **Tennessee-Based Hospital Chain Pays \$31M To Settle Allegations Of Overcharging Federal Health Programs – May 2000** *(old, but illustrative example)*
- Community Health Systems (CHS) agreed to pay \$31M to resolve allegations it submitted false claims to US Federal & State programs
- Settlement followed allegations of “upcoding” –**the improper assignment of diagnostic codes to hospital inpatient discharges** for purpose of increasing reimbursement amounts
- Overcharges stemmed from misuse of eight different codes, including those for pneumonia, septicemia, certain cardiac conditions, and respiratory failure and ventilators
- <http://www.justice.gov/opa/pr/2000/May/096civ.htm>

# Inpatient Hospital Facility

## Detection of Inappropriate Claims

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- Optum focus on DRG-based payments and inappropriate use of Primary & Secondary diagnosis to manipulate reimbursement
- DRGs
  - International and widespread payment method; across different proc/dx coding systems
  - Locally modified/applied, core principles of grouper logic remains the same
- Detection method articulated against the core principles of all DRG groupers' logic – aiming to ferret out their weaknesses
- Detection method designed to be claim-centric, thus allowing it to be inserted into prepay positions within the claims processing stream

# Building a Risk Score for DRG claims

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- GOAL = is there a much more appropriate DRG (esp. if it's paying less, or even a lot less) than the one currently assigned to a given claim?
- Are there elements existing on the claim that closely correlate to known “weaknesses” in the grouper machinery?
- Are there elements currently not on the claim, i.e. missing, switched/replaced or (intentionally or not) omitted, that would also play directly into the hand of known problems in the grouper's logic?
- Are there elements on the claim that simply don't align with other elements, in the context of the currently assigned DRG, or of a more optimal DRG?
- Optum Advanced Analytics Team in Final steps for deployment

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# Sample Client Health Care Fraud Findings Using a Hybrid Approach

# Example 1 – Commercial U.S. Health Plan

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- Problem statement:
  - Increasing number of patients exhibiting drug-seeking behavior for Promethazine with Codeine (party cocktail) and Hydrocodone (pain tablets)
- Analytics applied: Rules, anomaly detection and link analysis
- Data Provided:
  - All claims, provider and member information for 1 year and 1 region
  - ~ 414k claims, 116k members, \$18.7M annually for these 2 drugs
- Findings:
  - ~\$1.5M in suspicious activity detected
  - 1.4% of members taking these drugs flagged (1,587 patients)

# Example 1 – Commercial U.S. Health Plan

Based on SAS score	Hydrocodone		Promethazine with Codeine	
	Total tablets	Total Cost	Total ML	Total Cost
Top 10 members	40,685	\$1,999	89,834	\$1,405
Top 50 members	198,170	\$12,001	340,961	\$5,326
Top 500 members	1,892,428	\$106,726	1,956,103	\$31,307
All members score>0 <sup>[1]</sup>	2,915,604	\$163,077	2,398,391	\$38,553

[1] 858 members had score > 0 for Hydrocodone  
759 members had score > 0 for Promethazine



# Example 1 Findings: Top 10 Hydrocodone Members

Member inactive or 1+ Rx dispensed outside mem dates

All 20 new hydrocod Rx had no prior doc visit

Of all doctors visits , only 3 did not involve prescribing this drug

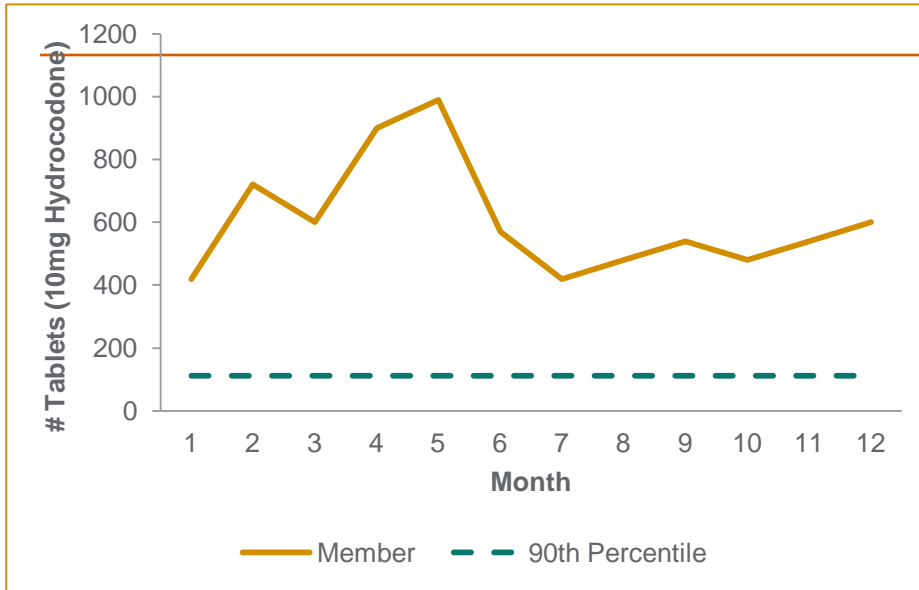
Multiple sources

72 purchases of other fraud-prone drugs

		Inactive		New Rx	% New Rx of this Drug with No Dr Visit	# Dr Visits with No Rx of this Drug	# Pharma	# Prescribers	# Rx other fraud prone drugs	Zipdist
****4375	62	1	4230	20	100	1	2	3	8	8
****0276	62	1	2784	16	94	0	3	3	0	35
****0040	60	1	3269	23	100	0	2	5	0	1
****8680	60	0	3765	71	97	24	5	10	18	2
****3940	60	1	5330	28	86	4	1	2	36	0
****8351	60	0	7260	48	88	3	3	1	72	0
****5070	59	0	3724	45	98	1	6	7	0	7
****4700	57	0	3863	57	95	10	6	8	14	0
****3469	56	1	2260	28	54	12	5	10	33	1
****0319	56	0	4200	14	100	0	1	2	15	14

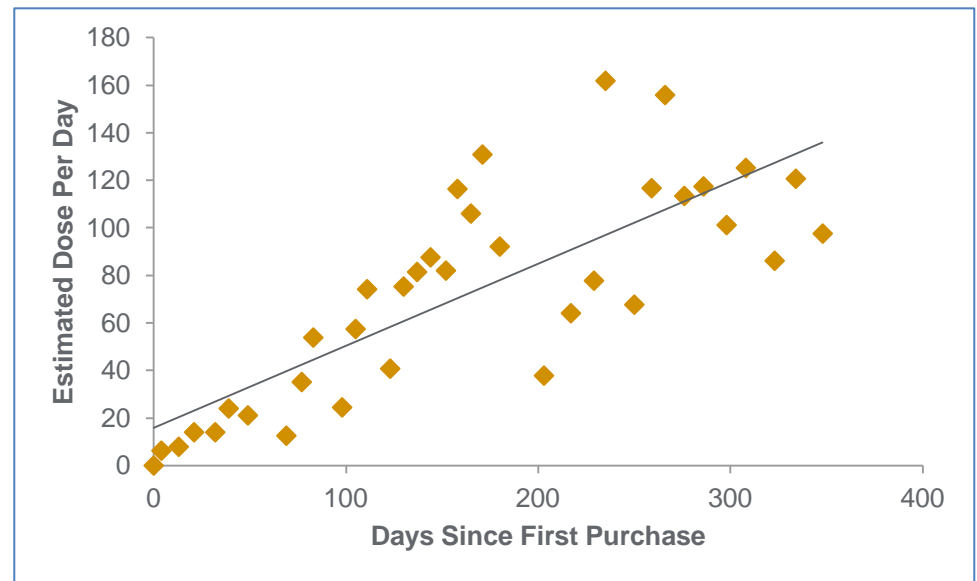
Travels 35 miles more for hydrocod compared to non-fraud-prone drugs

# Detailed look at Member



- Monthly # tablets purchased is excessive compared to other hydrocodone users.
- All scripts came from 1 prescriber.

patient buys more frequently than when supply runs out



# Example 2 Findings:

## Top 10 Promethazine Members

Bought Prometh for 12 months. Not a seasonal user.

95% of new Rx for Prometh had no prior doctor visit

Went to 7 pharmacies and 8 prescribers for Prometh

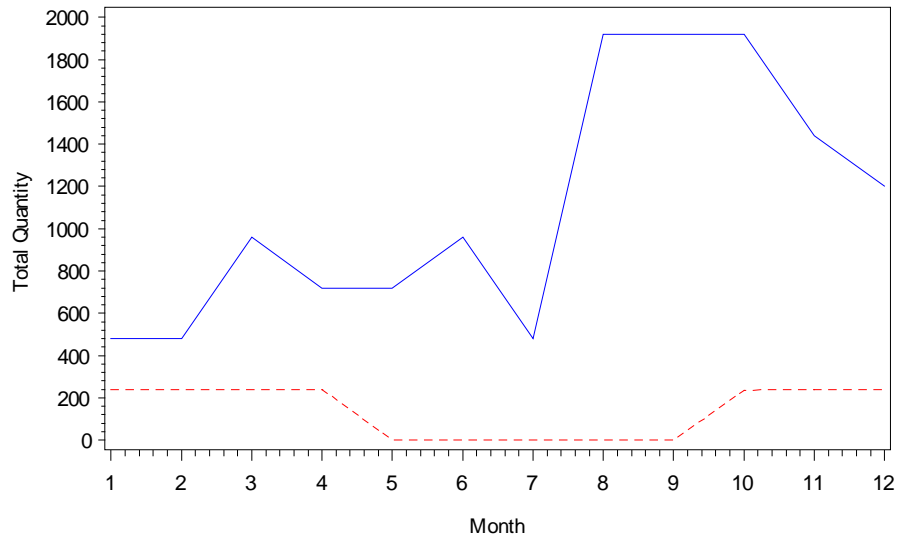
Traveled 4 miles more for Prometh compared to non-fraud-prone drugs

Member	score	with Spec	inactive	(ML)	with Rx for this Drug	Rx	Rx of this Drug with No Dr Visit	Visits with No Rx of this Drug	Pharma	Pres	fraud prone drugs		
****7226	64	0	1	16,800	11	35	100	0	1	2	31	0	
****5643	61	0	1	14,190	11	15	100	0	2	2	14	0	
****5543	60	1	1	5,038	7	22	100	0	4	7	15	0	
****0381	58	0	0	10,560	12	42	95	22	7	8	44	4	
****5606	57	1	1	5,160	6	24	100	1	4	9	3	0	
****3115	57	0	1	6,203	8	11	100	0	2	7	4	0	
****4290	56	0	0	13,673	12	31	90	3	6	4	22	1	
****6742	56	0	1	2,472	6	9	100	0	2	9	9	0	
****0371	55	1	0	12,440	12	26	92	1	4	3	16	6	
****3097	54	0	1	3,298	7	10	100	1	2	8	11	0	

Had 22 other doctor visits in 2009 that did not involve the prescription of Prometh. Could this be a cancer patient using Prometh as an anti-nausea drug?

# Detailed look at Member

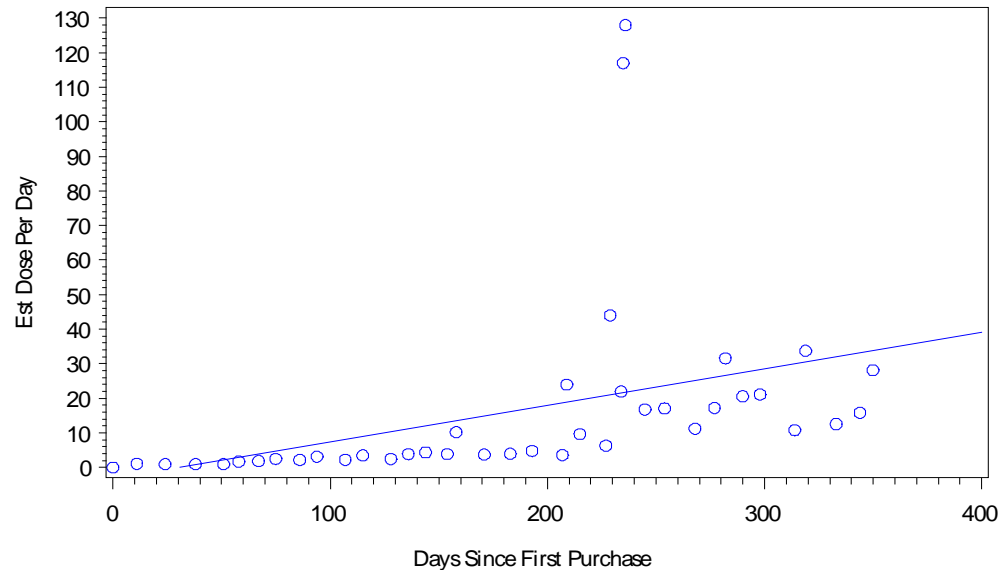
Dispensing Quantity



patient buys more frequently than when supply runs out

- Escalating usage.
- Heavy usage compared to 90%tile of age group (age 47)
- Expected seasonal usage not followed.

Avg Dose pDay



# Drug Seeking Behavior Study: Link Analysis

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- Suspicious Network of Collusion:



- 2 members, both high scorers, same address
- 6 prescribers, 9 for the other, none in common
- Member 1 had activity from January-August 2009, and member 2 from June-August 2009.
  - Activities of the 2<sup>nd</sup> member could have been stopped earlier if DSB scoring and link analysis were performed regularly.

# Example 2: Commercial U.S. Health Plan Targeting 5 Specialties

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- Problem statement:
  - Analyze professional claims payment activity in order to identify patterns of fraud, waste and abuse in: Labs, DME, Pain Management, Mental Health and Podiatry.
- Analytics applied: Rules, anomaly detection and link analysis
- Data Provided:
  - All claims, provider and member information for 1 year and 1 region
  - ~ 10k providers and \$161M annually
- Findings:
  - ~\$16M in suspicious activity detected
  - 623 providers flagged

# Example 2: Commercial U.S. Health Plan Targeting 5 Specialties

Specialty	# Providers	Amount paid	# Providers Flagged **	Amount Flagged
LAB	5,451	\$75,820,727	382	\$11,232,812
PAIN	2,158	\$32,587,234	104	\$2,466,119
DME	1,322	\$42,059,927	86	\$1,480,618
MENTAL	649	\$7,897,088	45	\$715,669
PODIATRY	493	\$3,000,998	15	\$93,086
<b>All Five</b>	<b>10,073</b>	<b>\$161,365,974</b>	<b>632</b>	<b>\$15,988,304</b>

**\*\* Includes all providers with at least 1 alert triggered**

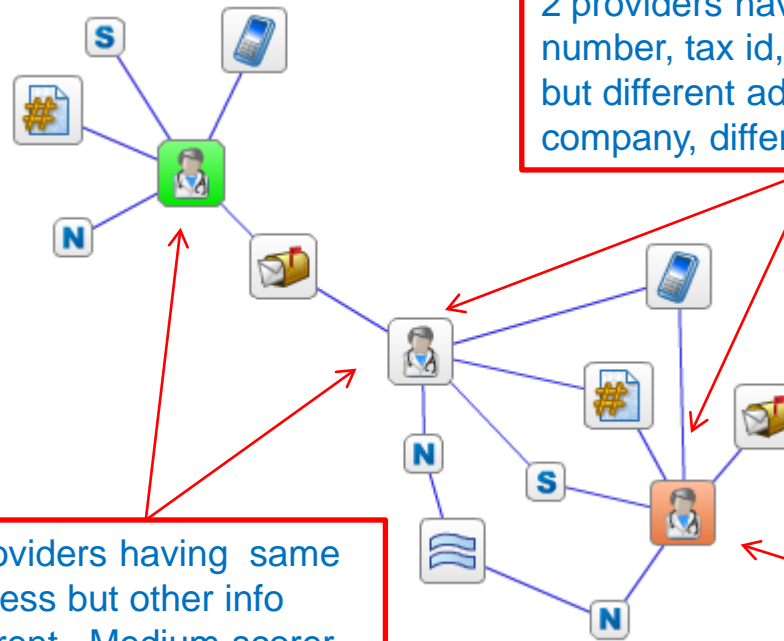
# Example 2: Commercial U.S. Health Plan Targeting 5 Specialties

- Goal: uncover potential fraud networks by linking flagged providers based on name, address, phone number, tax id, Social Security Number

## Network 10884:

- 3 LAB providers → 2 LAB companies
- total potential loss = \$81k

- S** SSN
- #** Tax ID
- 👨** Provider No
- 📞** Phone Number
- N** Name
- 📧** Address
- 🌊** Soft Match



2 providers having same address but other info different. Medium scorer colored green, while low scorer colored white.

2 providers having same phone number, tax id, similar names, but different addresses → same company, different branches?

High scorer (75). Potential loss=\$79k.



# Ted's Closing Thoughts

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- Multiple Analytical Methods and Advanced Analytics are a Must
- Data, data and more data - use all data available to you!
- **Work together**
  - **Healthcare fraud IS a truly global problem!**
  - **Use & Embrace International Focus of:**
    - Global Health Care Anti-Fraud Network – GHCAN
    - US National Health Care Anti-Fraud Association - NHCAA,
    - Canadian Health Care Anti-Fraud Association – CHCAA
    - UK Health Insurance Counter Fraud Group – HICFG
    - European Healthcare Fraud and Corruption Network – EHFCN
    - South African Healthcare Forensic Management Unit –
    - Gulf Healthcare Anti Fraud Association - GHAF
- **Get creative!!**
  - **“Fraudsters” WILL and DO in order to exploit vulnerabilities, perpetrate FWA and maximize their revenue, OUR loss**

# Perspective on Cost of Health Care Fraud

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EHFCN Newsletter, March – April 2010 <http://www.ehfcn.org/newsletter/2010/q1-2/articles>

- Estimated global dollars associated with health care fraud (£160 / €180 / \$260 billion each year) is enough to:
  - Provide clean, safe water around the globe
  - Bring malaria under control in Africa
  - Provide the Diphtheria, Tetanus and Pertussis vaccine to all 23.5 million children under one years age currently not immunized (2.5 million die each year from diseases preventable by vaccines)
- **AND** quadruple the budget of the World Health Organisation and UNICEF (the United Nations Children's Fund)
- ...with more than £100 billion left over – enough to build more than 1,000 new hospitals at developed world prices

# Questions and Discussion

# References and Sources of Information

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- EHFCN and UK HICFG co-hosted 2012 Global Summit, October 2012
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