



Fraud, Waste and Abuse in Healthcare Claims



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Introduction



Objective: Describe fraud, waste and abuse in health care and methods to discover and recover from it



**"In God we trust.
All others must bring data."**

- Dr. W. Edwards Deming



**What is fraud,
waste, abuse,
error and how
does it happen?**



**Challenges to
success**



Vocabulary



Use cases

Open Secret

CFO Magazine

Annual Waste in US Healthcare System Nears \$1 Trillion

So concludes a new study published in the Journal of the American Medical Association. The total estimated amount of waste amounts to between \$760 billion and \$935 billion annually. ... "For example, payers may fail to 2 days ago



CBS News

Health care administrative costs largest area of waste in health care spending

Waste in the U.S. health care system ranges from \$760 billion to \$935 billion per year, or more than total annual federal defense spending, according to a new study. ... this week in the Journal of the American 2 weeks ago



WCBI

Wasted US health care spending tops annual defense budget

But the overall amount of money that goes down the drain is even greater. ... Indeed, a 2016 study funded by the American Medical Association ... The second-largest cause of waste in health care stems from the ... That accounts for an estimated \$231 billion to \$241 billion in 2 weeks ago

Waste Domain	Estimated Cost	Savings from interventions
Failure of care delivery	\$102 – \$165 B	\$44 - \$ 93 B
Failure of care coordination	\$27 - \$78 B	\$29 - \$38 B
Low value care	\$75 - \$101 B	\$13 - \$28 B
Pricing failure	\$230 - \$240 B	\$81 - \$91 B
Fraud & Abuse	\$58 - \$84 B	\$23 - \$31 B
Administrative Complexity	\$266 B	

Fraud, Waste, Abuse and Errors



Fraud

Intentional deception or misrepresentation
Unauthorized benefit
Applicable under federal or state law



Waste

over-utilization
directly or indirectly result in unnecessary costs



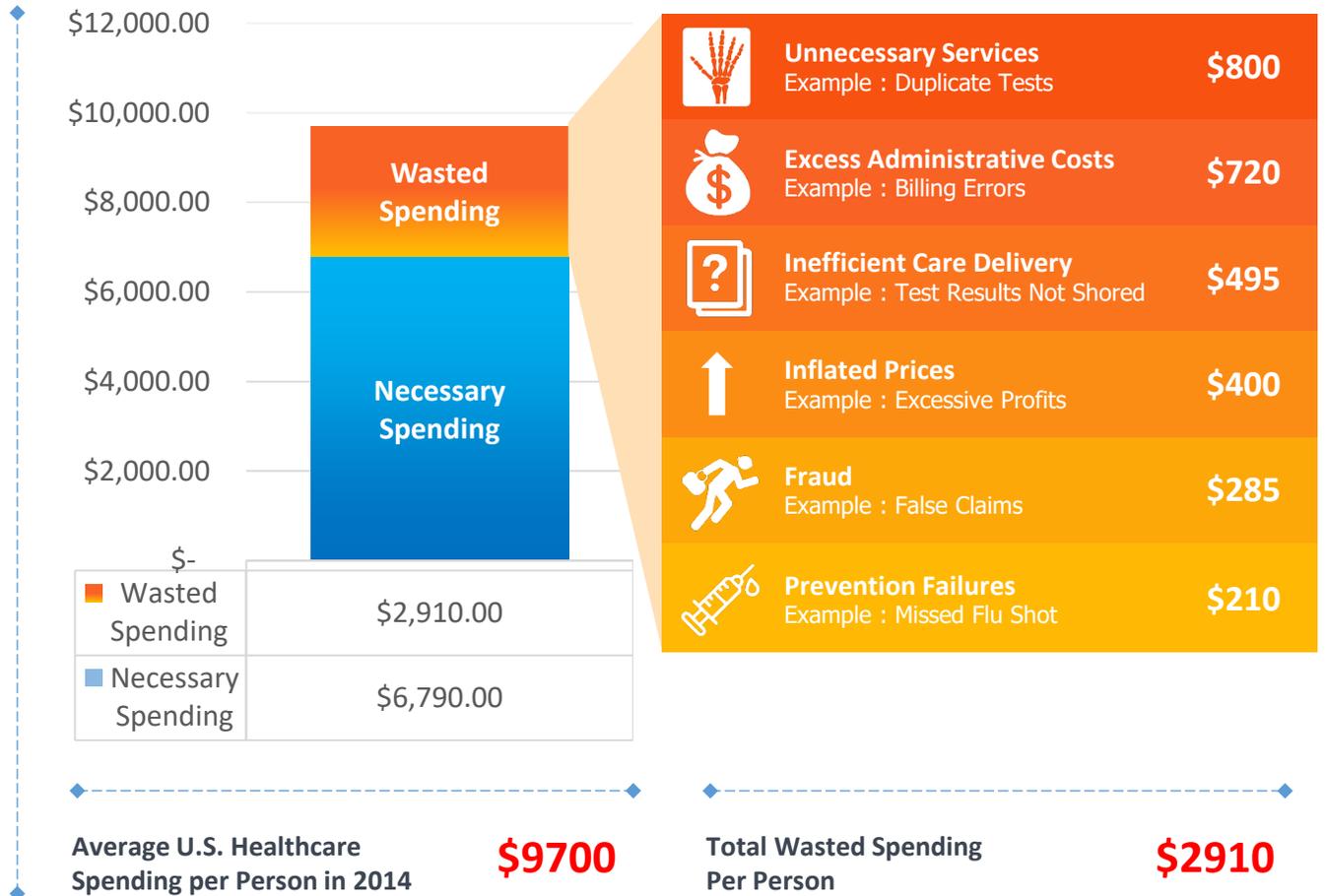
Abuse

practice not medically necessary
meet professionally recognized standards
priced fairly



Errors

Mistakes made in coding medical records



Challenges



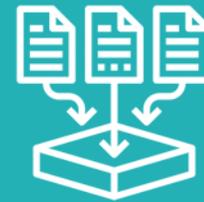
DATA BLOCKING

Data not provided



DATA TYPES

Unrelated data
types



DATA VOLUME

Unmanageable
quantity



DATA ANALYSIS

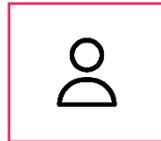
(Data or methods that
may skew your
results)



Whose Data is it Anyway?

DATA BLOCKING

Data not provided



Member



Provider



Carrier



Vendor



Employer

CMS Proposal Targets Information Blocking, Patient Data Access

The proposed rules double down on the **MyHealthData** initiative and call for an end to patient information blocking.

By 2020 all healthcare organizations working with Medicare and Medicaid

- Provide API
- No cost electronic data
- Applies to health information & claims data
- \$1 Million per violation



Health Care Coding Vocabulary

DATA TYPES

Unrelated data types

Term	Unit of Analysis
Diagnosis	ICD-10
Service or Procedure	CPT
Place of Service	PoS
Modifiers	Mod.
Service Units	Units
Taxonomy	Specialty
Service Lines	Lines
Date of Service	DoS

Metrics	Definition
Paid	Dollars paid per provider, patient, family
Patients	Count of patient to provider
Claims	paid, denied, interim, etc.
Visits	Count of unique days patient sees provider



Data comes from everywhere

DATA VOLUME

Unmanageable
quantity



Eligibility

Member
Demographics

Employer Data

Plan Design



Claims

Facility

Professional

Prescription



Ancillary

Medical
Records

Call Audit Logs

Mobile / GPS /
Social



How many codes exactly?

DATA VOLUME

Unmanageable
quantity

68,000 ICD-10

X 8,000 CPT

X 857 Taxonomy

X 99 Places of Service



~54 Trillion combinations!



DATA ANALYSIS

(Data or methods that may skew your results)

Sampling and Bias



Sample Size (N)



Sample - A good sample is representative

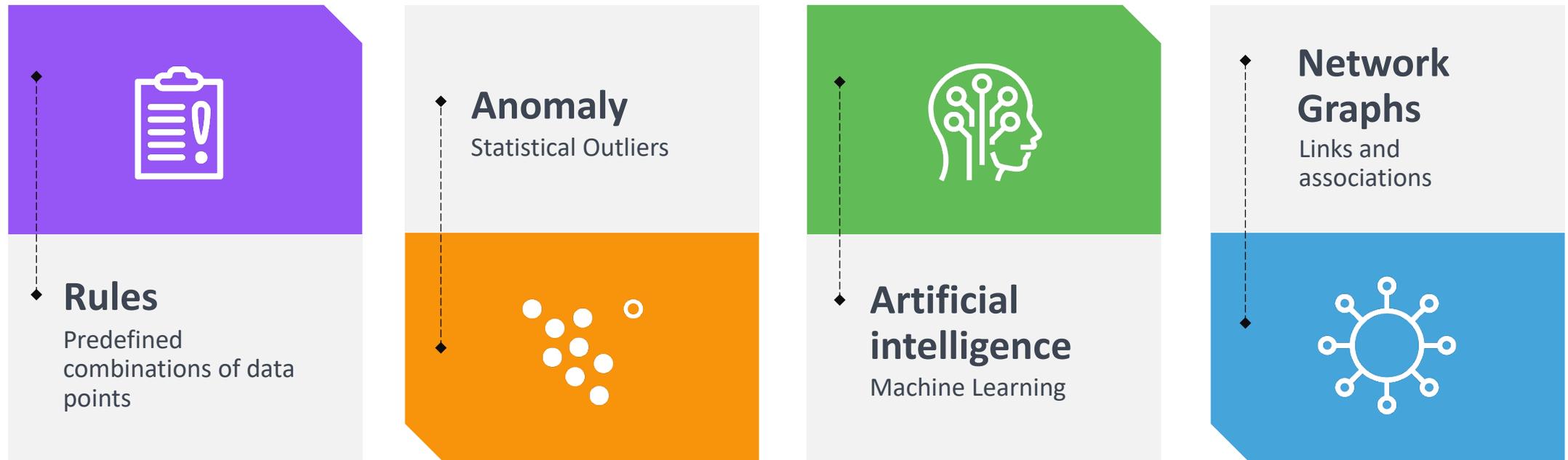
- Random Sampling (hat)
- Random Systematic Sampling (every Nth person)



Bias - The tendency of a sample statistic to systematically over- or under-estimate a population parameter.

- Cluster Sampling (zip code)
- Convenient Sample (mall shoppers)

FWA Detection Methods & Models





Rules

Predefined combinations of data points



Rule: Once in a Lifetime Procedure

CPT Code: 47562

Cholecystectomy: Surgical removal of the gallbladder

ICD codes	CPT - Mod	Service From	Service To	Places of Service	Days/Units	\$ Charges
574.20	47562	05/28/2015	N/A	Outpatient Hospital	1 UN	\$6,000.00

049.1	47562	05/19/2015	N/A	1 UN	\$6,012.00
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Rules Based Fraud model



Data types

- Unit of Analysis: ICD-10
- Metric: Visit count



- **V91.07:** Burn due to water-skis on fire



- **V95.40:** Spacecraft crash injuring occupant



Deny all “in-law” related claims!

- **Z63.10:** Problems with in-laws

Behaviors

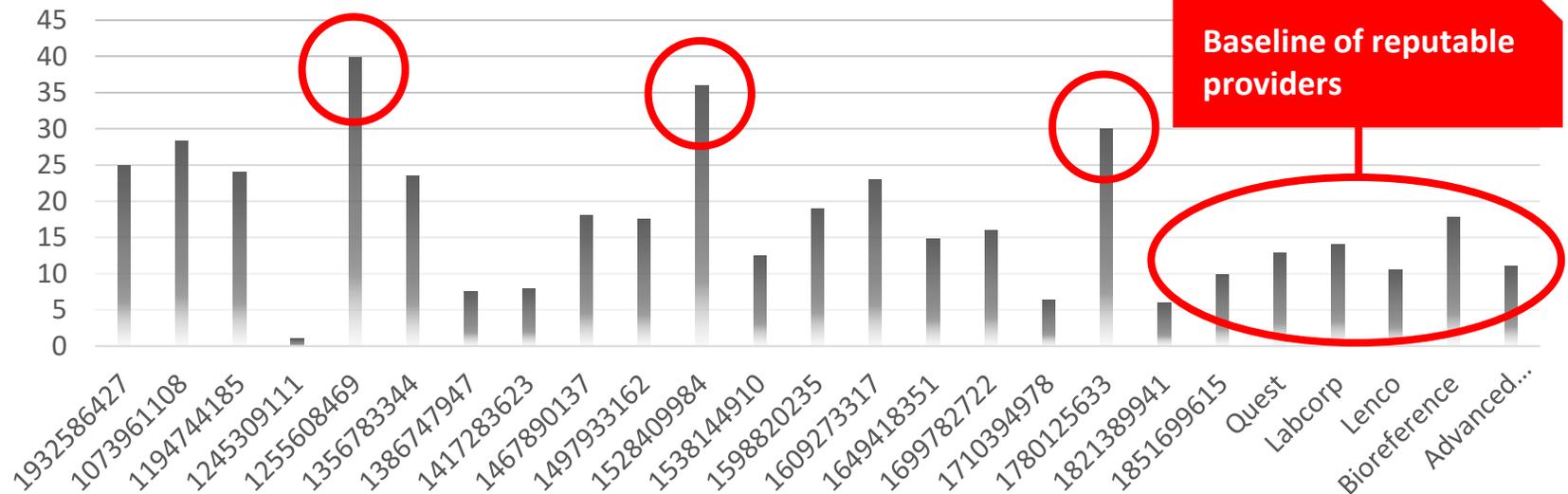
Procedure/Patient

- Diagnosis/Claim
- Paid/Place of Service
- Modifiers/Claim
- Service Units/Date of Service
- Visits/Provider Specialty
- Lines/Claim
- Patients/Date
- Paid/Patient

Anomaly
Statistical Outliers



NPI/# of Tests per Claim



Anomaly

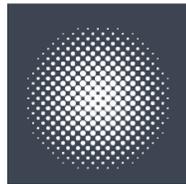
Statistical Outliers



Data Behaviors



Frequency : the number of occurrences of a repeating event per unit time



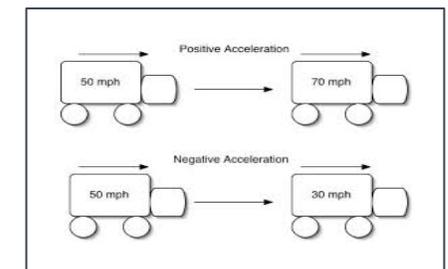
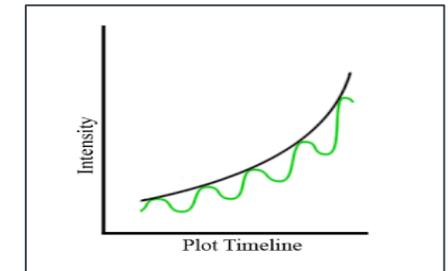
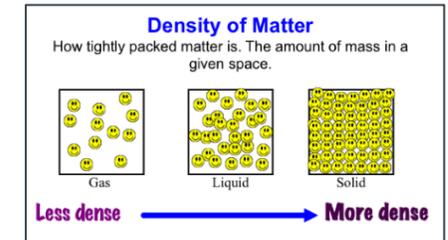
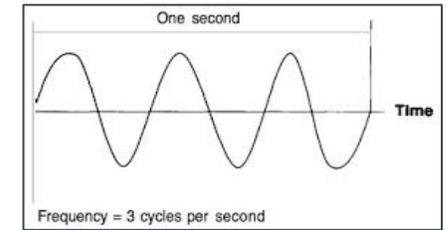
Density : the number of items within a unit of measure



Intensity : the degree, volume, or magnitude of a thing

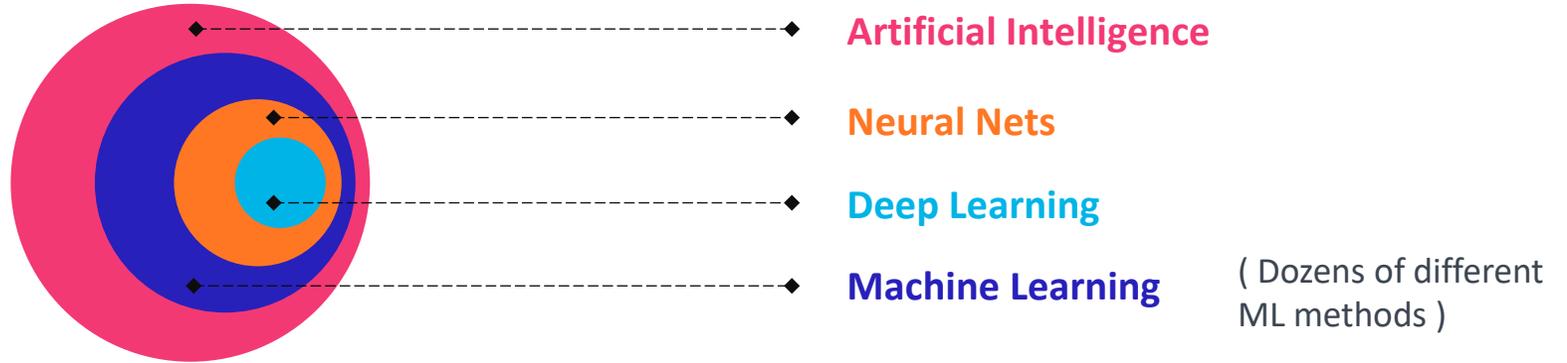


Velocity : the quickness of motion or action, abnormal changes in trends such as spikes





AI, Machine Learning and Neural Networks



Artificial intelligence studies ways to build intelligent programs and machines that can creatively solve problems

Machine learning is a subset of artificial intelligence (AI) that provides systems the ability to learn and improve from experience without being explicitly programmed.

Deep learning, or deep neural learning, is a subset of machine learning, which uses the neural networks to analyze different factors



ML & AI: Feature Selection

Artificial intelligence

Machine Learning



Patient

Real Patient
Over Prescribed Patient
Addict
Diverter/Dealer
Stolen Identities
Patient Brokers



Providers



Prescribers

Hospitals
Treatment Facilities/Sober Home
Extenders
Doctors/Practitioners
Home and Community Based Services
Medical Team



Pharmacy



Drug Manufacturers



PBM

Retail Location
Compound Pharmacies
Mail Order
Good Pharmacist
Bad Pharmacist
Manufactured Prescriptions

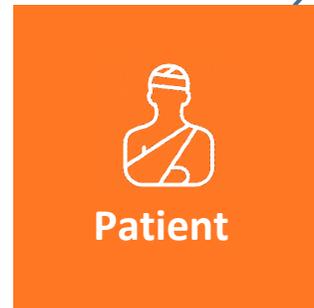


ML: Narcotics Schemes



◆ **Artificial intelligence**
Machine Learning

Heavy consumer of narcotics – where they get drugs from



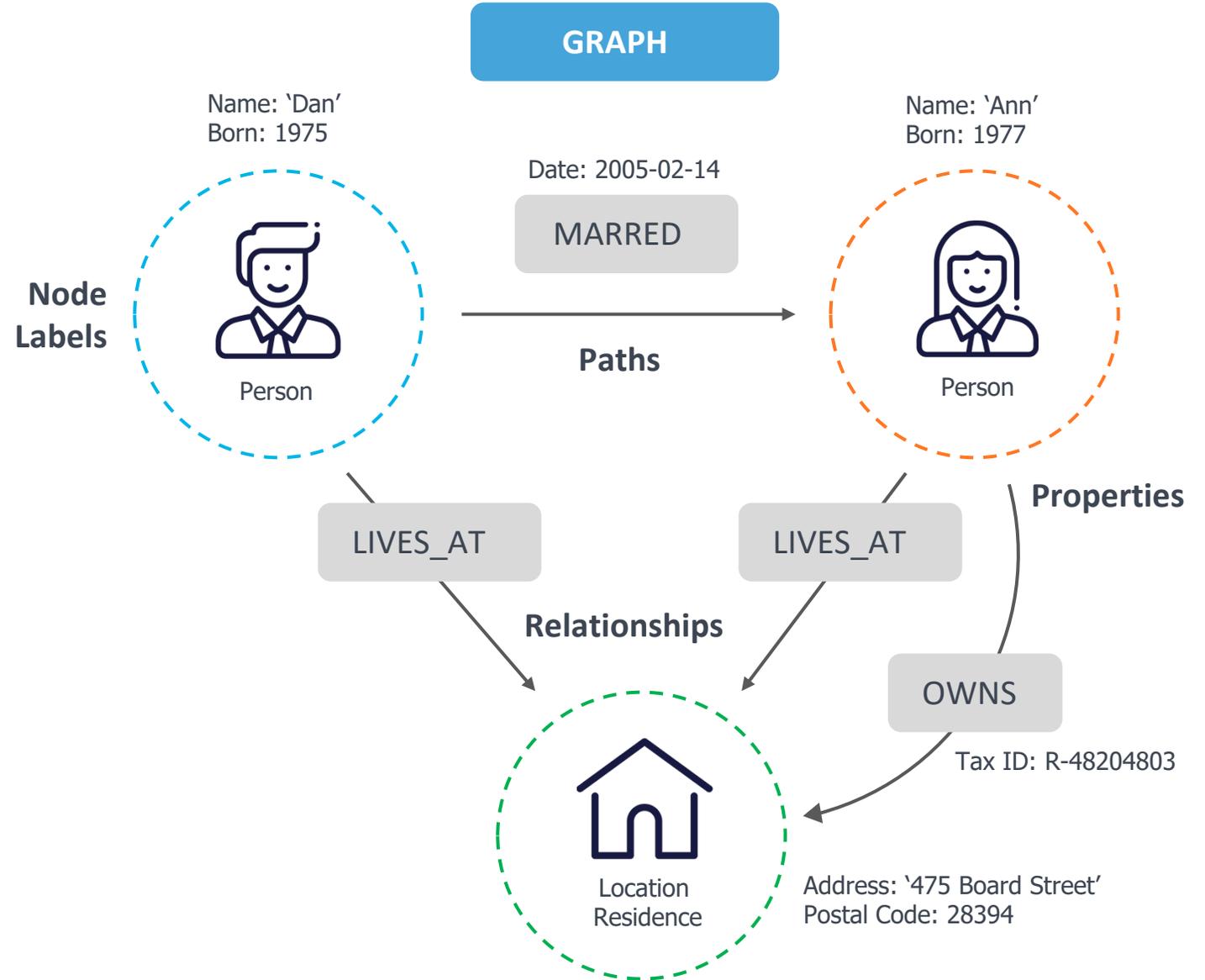
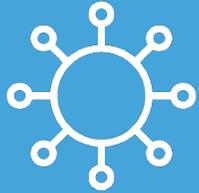
Pharmacies with significant narcotics revenue



Doctors prescribing an unusually high amount

Network Graphs

Links and associations



Relationships

Couple accused of defrauding Medicare hit with new charges

By **Emily Saul**

January 17, 2018 | 5:54pm | Updated



Ramazi Mitaishvili and Tea Kaganovich

Claims

Company Name - EIN

- 1 SOPHISTICATED IMAGING INC ✕
- 2 EAST COAST DIAGNOSTICS... ✕
- 3 EAST SHORE DIAGNOSTICS... ✕

Bill	Service	Render	Refer	Patients
<input checked="" type="checkbox"/>				1 2 3
<input checked="" type="checkbox"/>				1 2 3
<input checked="" type="checkbox"/>				1 2
<input checked="" type="checkbox"/>				1 3
<input checked="" type="checkbox"/>				2 3

Takeaway

- **Get the data**
- **Organize the data**
- **Determine high value areas**
- **Use appropriate tools for analysis and interventions**
- **Measure the effects**
- **Rinse and Repeat**

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Thank You!

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Questions ?

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viveka | driving health
value