Data Science in Industry

Denise Gosnell, PhD
Who is PokitDok?

Kite Surfers

Neuroscientists

Mathematicians
What is PokitDok?

PokitDok is a platform for the business of health supporting transparent and real time healthcare transactions from benefits to payment.
What is PokitDok?

The **business of health**, for developers.

JSON-Based
API Endpoints
& EDI Support

https://platform.pokitdok.com/
What about the Data Science?
Data Science Skills:
What do Data Scientists do...?

Get Data → Cleansing → Analysis → Take Action

80% 20%
Data Science at PokitDok:

• **Unified Data Access:** Graph model

• **Historical insights:** Persisting and extracting insights from any health transaction

• **Predictive models:** Health exchange risk management and opportunity detection
Unified Data Access:
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How many dentists in South Carolina are male?

```javascript
find({ 'gender': 'male', 'location.state': 'SC', 'specialty_primary': 'dentistry' }).count()
```

What’s the price range for cash payment for {CPT code} in {zip code}? How does that compare with insurance pricing?

What are the in and out of network providers for a given insurance company?

Which payors does MUSC accept?
Historical Insights:
pokitdok.com/blog
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pokitdok.com/blog
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pokitdok.com/blog
Predictive models: HCO

How it works

Patients
With the patient’s consent, organizations can make informed lending options available to help finance expensive, non-acute procedures that often fall below the deductible threshold, like orthopedic surgery, imagery and cosmetic treatments.

Financial Institutions
Lenders and payment solutions, with interests in healthcare, can make services available that are more attractive to consumers than high interest credit cards.

Calculate probabilistic risk

HCO

Pay cash or opt for a payment plan

Hospitals/Sole Providers
Providers then mitigate financial risk, improve cash flow and have more resources to support payment options for care.
Health Informed Credit Outcome

- Process Claims info via ETL
- Process Provider Information via API
- Process Consumer Info via API
- Process Related Finance Info via API

Create Payor Probabilistic Graph
Create Provider Probabilistic Graph
Create Consumer Probabilistic Graph
Create Financial Probabilistic Graph

Create Health Informed Credit Outcome

Output to API
Score is alphameric
Data Science at PokitDok:

“The most important thing is coding. Pick a problem. Go figure it out.”

-Ted Tanner, Jr. @tctjr
CTO of PokitDok
My recommendation to you:

1. Start coding
2. Break stuff
3. Repeat
Some places to start:

Python:
- MatPlotLib
- Bokeh
- NetworkX
- NumPy
- SciPy
- PyBrain
- Scikit-learn
- Django
- Pandas

Other:
- Spark
- Titan
- TinkerPop
- iTunesU
- KDNuggets
- ElasticSearch
- Gephi
- Gremlin
- GraphLab
- ...

T & GitHub
@DeniseKGosnell
Knowing what I know now, what would I have done differently?
Always looking for interns and grads.

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