



Wellness Data

Leveraging Supplemental Sources to
Better Understand the Health Risks of
the End User

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Legislation driving Adoption of Electronic Health Records

Electronic Health Record Regulation

ARRA(2009): American Recovery and Reinvestment Act("stimulus package").Established timeline for future incentives for health care providers to offer patient health records in electronic format

Positive Rewards / Incentives for “Meaningful Use” of EHR(2011-2014): Healthcare providers which demonstrate “meaningful use” of EHR receive increased levels of Medicaid and Medicare reimbursements

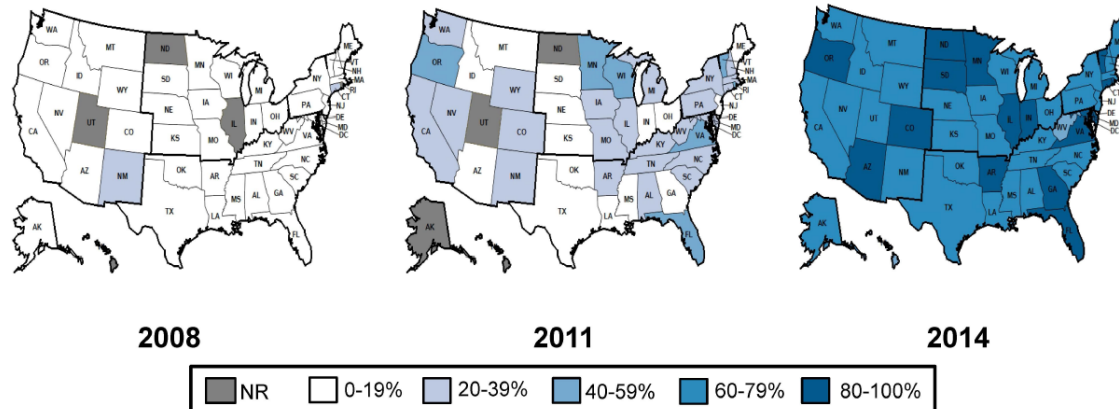
Penalties for Lack of “Meaningful Use” of EHR(2015+): Healthcare providers which fail to demonstrate “meaningful use” of EHR receive reduced levels of Medicaid and Medicare reimbursements



Meaningful Use



State adoption rates for acute care hospitals have increased significantly from 2008-2014



Source: healthit.gov

The proportion of American hospitals with an electronic health record has grown eight-fold in recent years, from 9% in 2008 to 76% in 2014. As for office-based physicians, over 80% have adopted an EHR by the end of 2014.

Electronic Health Records (EHR) Collection Process

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Records Data Import Settings Help Dan Demo

Import

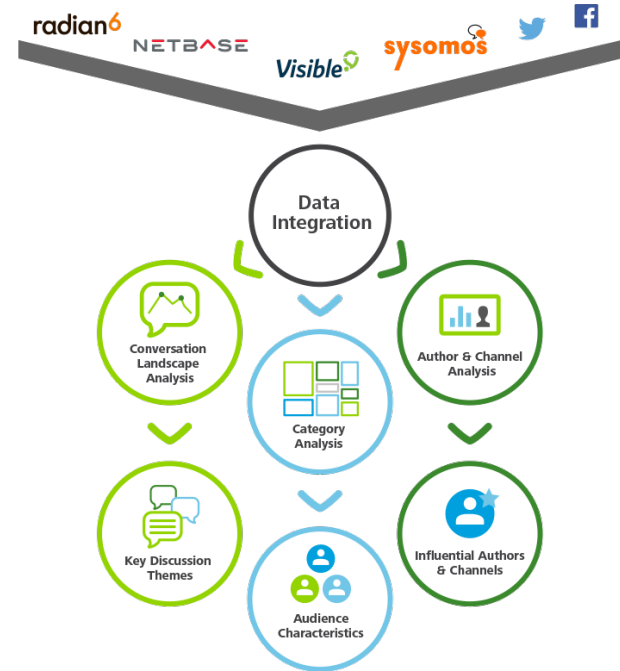
- Patient Portal Records**
Schedule automatic periodic collection of health records from your patient portals
- Health Plan Portal Records**
Collect health records from your Health Plan portals
- Medicare Records**
Schedule automatic periodic collection of clinical data in your Medicare claims records from MyMedicare.gov
- VA Health Records**
Schedule automatic periodic collection of your VA health records from My HealtheVet
- DIRECT Inbox**
Receive summaries sent directly from your providers' EHRs and communicate securely with your doctors
- Personal Device Records**
Schedule automatic periodic collection of data from your personal health/fitness monitoring devices
- Upload Files**
E-mail or upload any electronic records you have in any format
- Upload DICOM Study**
Upload imaging studies such as x-rays or MRIs provided to you on CD
- 23andMe Records**
Retrieve your genomic data and analyzed health reports from your 23andMe account

Deloitte **automates** the collection of EHRs from:

- Nearly 2,000 hospital and physician group patient portals
- Health Plan Portals
- Medicare (mymedicare.gov)
- VA (myhealthvet.com)
- Personal health monitoring devices (with Validic)
- Direct messages from MU-compatible EHRs
- X-Rays and MRIs
- Genetic testing services

Emerging Trends - social analytics, quantified self, etc.

Digital Analytics leverages a number of different tools to collect social conversations, then uses a combination of automated and manual processes to analyze the data.



“Quantified Self” applications such as Fitbit, Apple Watch and Smart Phone Apps allow customers to monitor and share lifestyle/health data

D-rive Business Overview

Insurer Need for Telematics

- Insurers are identifying the need for a telematics-based solution to better understand driver behavior and have a more precise view of risk
- Once the need for telematics has been identified, an insurer decides whether to build telematics capabilities or leverage third-party solutions
- Insurers then determine the specific solution that best fits their business and addresses their need

D-rive Product

D-rive addresses the insurer's need for telematics and accelerates an insurer's entry into the growing UBI market

Mobile App



- Automatic Trip Detection
- Real Time Trip Score
- Minimal Battery Impact
- Configurable White Label App

Cloud Analytics & Data Bureau



- Driver vs. Passenger ID
- Driver Score
- Secure & Scalable Environment
- Anonymized & Aggregated Data

Customer Portal



- Configurable UI & Scoring Algorithms
- Advanced Analytics
- Customer Support
- Access to Shared Data Bureau

Insurer and Driver Benefits

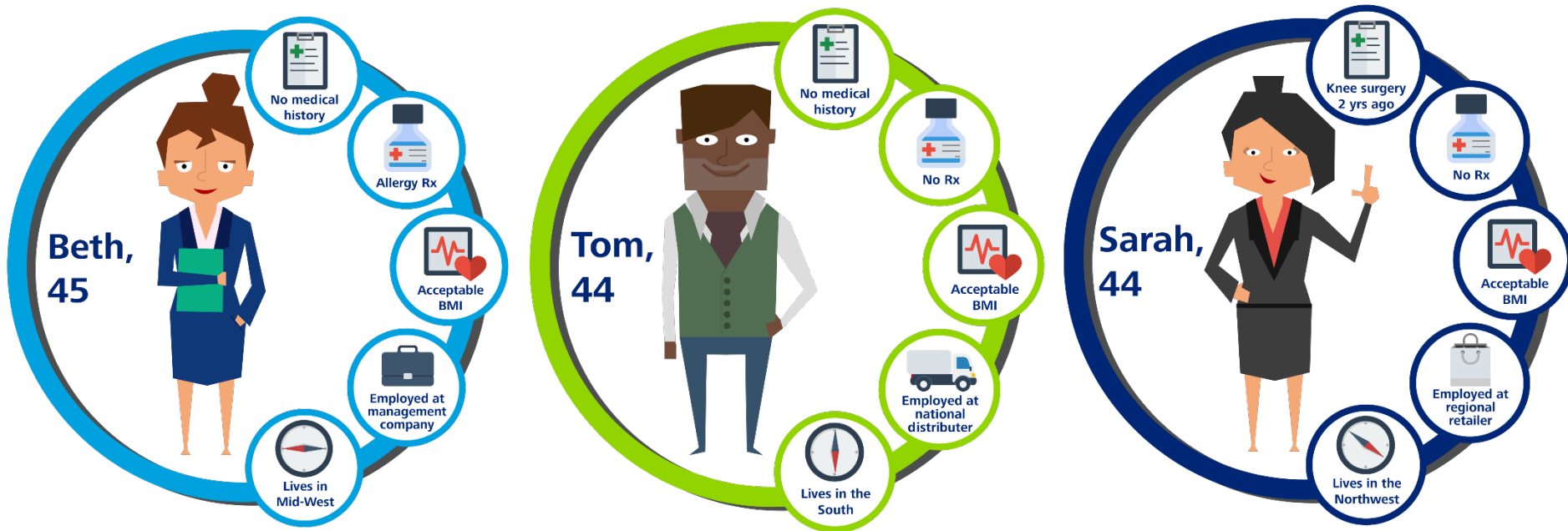
Benefits for Insurers:

- Better understanding of driver risk
- Increased consumer retention
- Increased conversion rate
- Ability to provide innovative customer service relating to safety
- New and innovative products to use to attract policyholders

Benefits for Drivers:

- Discount on monthly premium
- Easy-to-use mobile application
- Detailed statistics about driving and trip behavior

Evaluating the Population



Who will generate the highest medical claim costs?

“Lifestyle-based” Analytics

Beth



- No medical history
- Allergy Rx
- Acceptable BMI
- Administrative Assistant
- Lives in Mid-West

Residence | 15-year resident; renting 4 years

Commute | 45 miles

Financial Indicators | Foreclosure / bankruptcy

Health Indicators | Fast food | Walks; purchases health equipment

Interests / Personal | Avid book reader | High TV consumption | Self-improvement | Divorced; no children

Tom



- No medical history
- No Rx
- Acceptable BMI
- Manager w/ 20 years experience
- Lives in the South

Residence | Lifetime resident; homeowner

Commute | 2 miles

Financial Indicators | Excellent financial indicators

Health Indicators | Outdoor enthusiast

Interests / Personal | Golfer | Married; 2 children

Sarah



- Knee surgery 2 yrs ago
- No Rx
- Acceptable BMI
- Employed at regional retailer
- Lives in the Northwest

Residence | New in town; renting 2 years

Commute | 1 mile

Financial Indicators | Good financials; premium bank card

Health Indicators | Healthy food choices | Active lifestyle

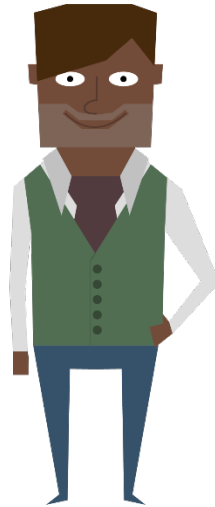
Interests / Personal | Variety of outdoor activities | Urban Single Cluster | Active in civic community | Reading design & travel magazines

“Lifestyle-based” Analytics



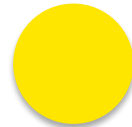
The pool of candidates who score similar to Beth will have **increased medical claims of 18%**.

- Long commute
- Poor financial indicators
- Purchases tied to obesity indicators
- Lack of exercise



Tom falls into the pool of candidates that are **near expectations** on morbidity assumptions.

- Strong personal ties to community/location
- Avid outdoor enthusiast
- Avid golfer
- Average commute



The pool of candidates who score similar to Sarah will have **reduced medical claims of 15%**.

- High activity indicators
- Good financial indicators
- Healthy food choices
- Little television consumption
- Foreign traveler



Disease state model demo – depression

Tableau - Disease State Depression_final

File Data Worksheet Dashboard Analysis Map Format Server Window Help

Case Specific Depression %

Population Avg - 9.5%

9%

Demographic & Household Information

Calculated Age Range
40-49

Education Level Range
Post Grad

Marital Status
Married

Number of Children
3

Population Density Range
Low

Bankruptcy Indicator
 No
 Yes

Homeowner Status Indicator
 No
 Yes

Household Income Range
\$101,000-\$125,000

Length of Residence Range
0-2 years

Recent Address Change Indicator
 No
 Yes

Gender Code
 Male
 Female

Presence of Elderly Parent Indicator
 No
 Yes

Retired Indicator
 No
 Yes

Verified Address Indicator
 No
 Yes

Occupation Type
 Professional
 Other

Title DB-GeoDemographic DB-Consumption

3:26 PM 11/28/2012

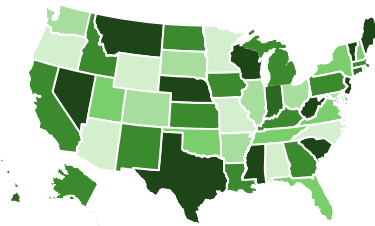
Customer Insights dataset

CI

150 +

Our analytics is powered by 150+ algorithms including:

- Disease state algorithms
- Lifestyle clusters
- Purchase behaviors
- Propensity to need and purchase insurance



We have scored the entire United States adult population (**230 million lives**), giving clients the ability to identify the markets and individuals within those markets who are most likely to buy and most likely to qualify – driving to higher response and approval rates

50+ TB

We have access to over 50 terabytes of third-party data that provides individual-level lifestyle and purchasing habit insights across the entire United States population

Leveraging LBA



Financial Sustainability

Growing enrollment and achieving long term sustainability

- **Target the right population segment:** Identification of potential new members and uninsured profiles in the Individual market and identify potential employer participation in Small Group and preferred benefit levels for the Small Group market
- **Retain enrollment** using retention analytics to identify patterns of disenrollment
- **Expand market segments** by developing strategies for group expansions (e.g. inclusion of unions, Taft-Hartley plans, etc.)



Health Management

Improving health risk of the enrolled population

- **Develop cost trends** to identify rate level drivers such as population risk, pent up demand and disease conditions prevalence
- **Provide deeper understanding of health improvement outcomes** year over year
- **Target population with high prevalence and response rate** for change management



Consumer Experience

Enhance the consumer experience from end-to-end process

- **Develop marketing campaign lists** with outreach methodology suitable for target consumers
- **Provide guided whole consumer shopping experience tool** (i.e. plan selection tools) for enhanced consumer education and shopping experience
- **Support pro-active engagement** throughout the coverage period
- **Improve member and provider relationship** using provider matching tools

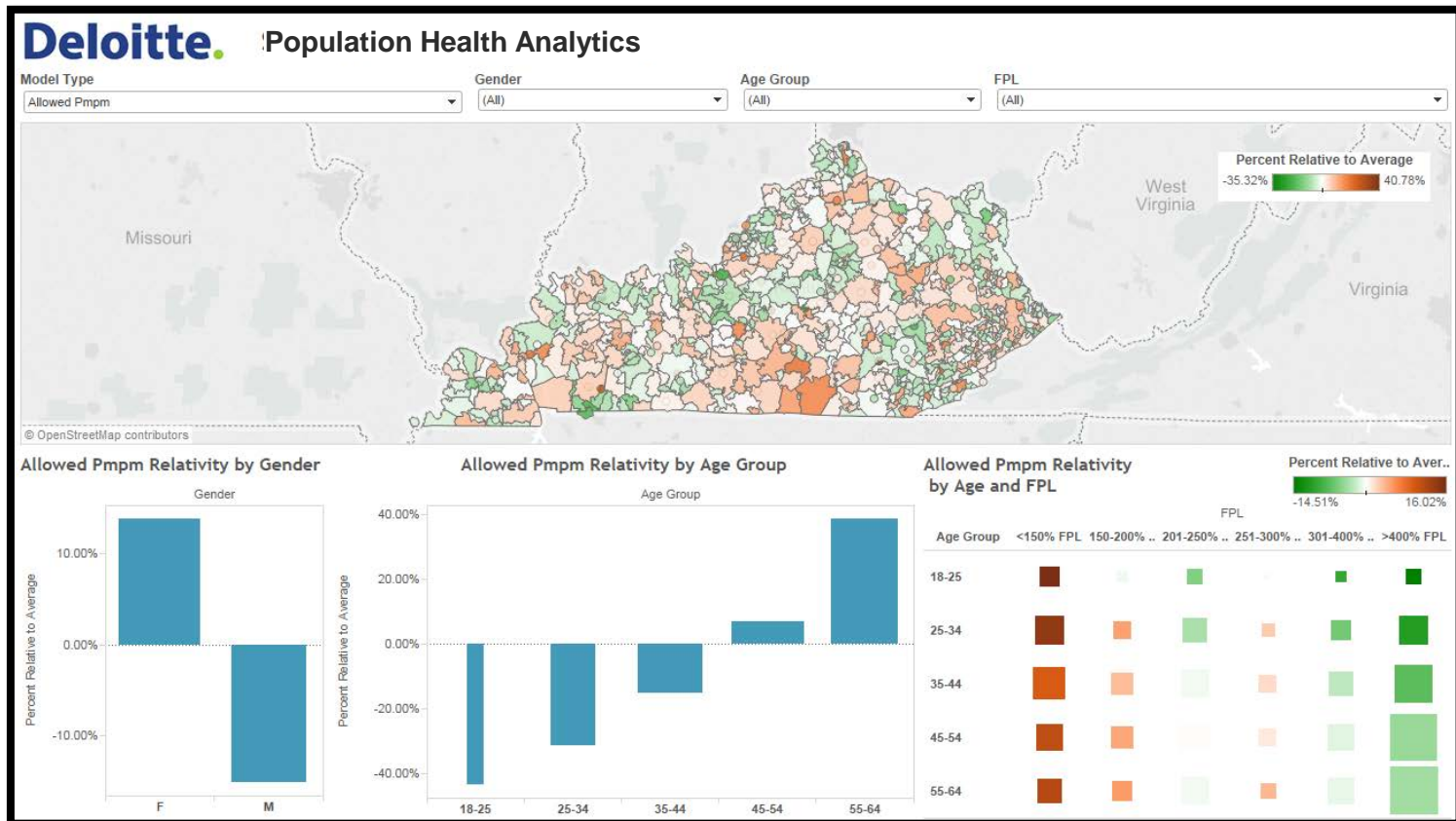


Product Management

Provide consumer choice and affordability

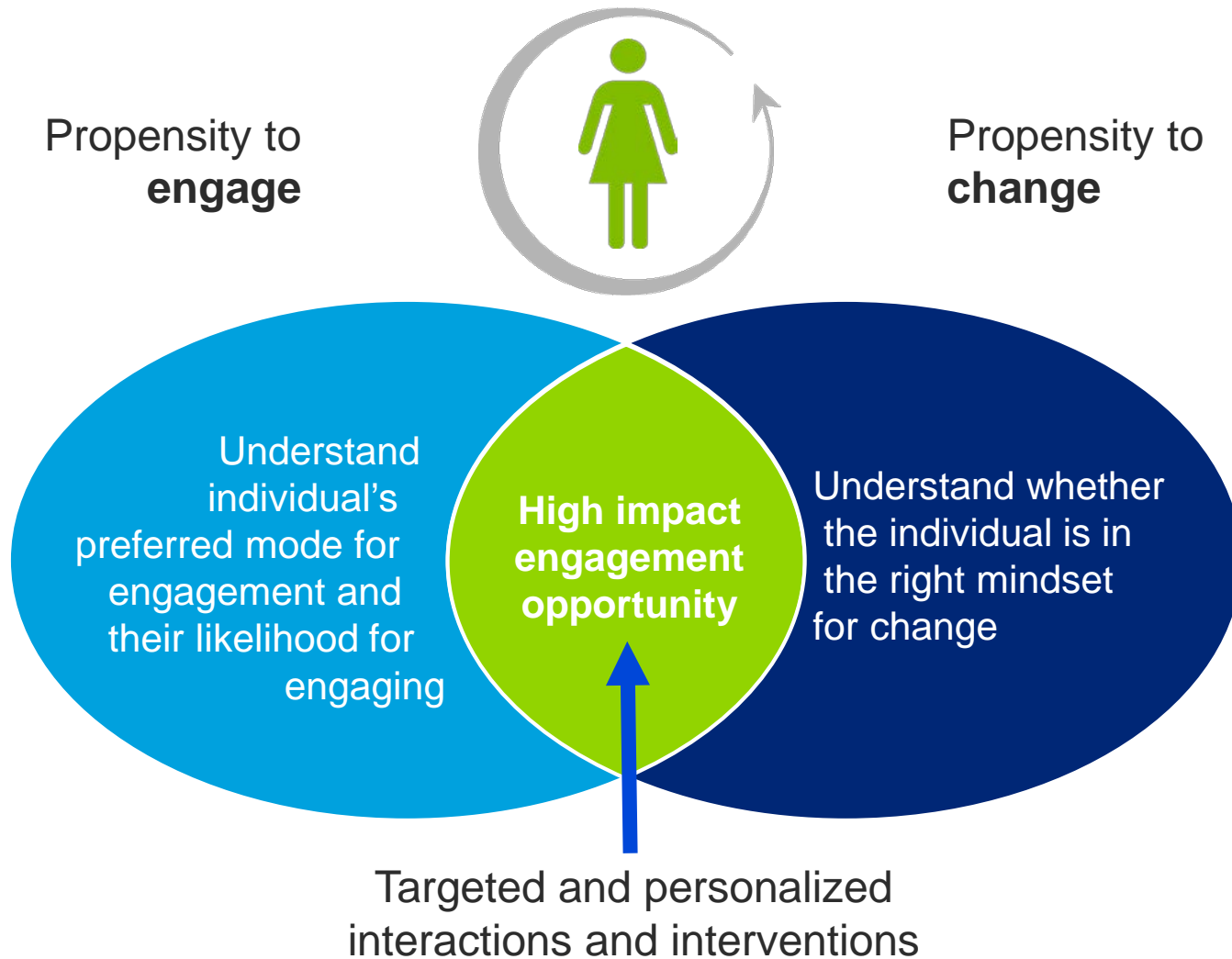
- **Identify consumer demands** on new plans (e.g. platinum level plans)
- **Develop price elasticity of demand** to support rate making review
- **Provide quantifiable measures on population health risk** for rate review support

Modern health analytics can profile current and prospective consumers along several key dimensions



Every consumer in the US can now be mapped to health risks, product and communication preferences, and change behavior.

Health plans are quickly switch from patient centric view to a consumer centric view



The art of the possible for prediction and prevention strategies



John Smith



- 48 year old male
- Married to Jane with 3 children at home
- Undergraduate degree; employed in white collar job
- Group health insurance
- Hobbies include college and professional sports viewing and craft beers

Health risks include

- Increased risks for diabetes, cardiovascular and hypertension
- Low risk for tobacco related illnesses

Actions: Schedule full annual including complete lab with Dr. Smith



Jane Smith



- 45 year old female
- Married to John with 3 children ages 14, 12 and 9
- Master's degree in business; employed as stay-at-home parent
- Hobbies include team tennis, yoga, and 5k and 10k running

Health risks include

- Increased risks for skin cancer
- Low risk for diabetes, cardiovascular, and maternity event

Actions: Send a sun-blocking tennis hat, skin cancer educational brochure and coupon for sunscreen



Smith children



- Multiple pets in the household

Health risks include

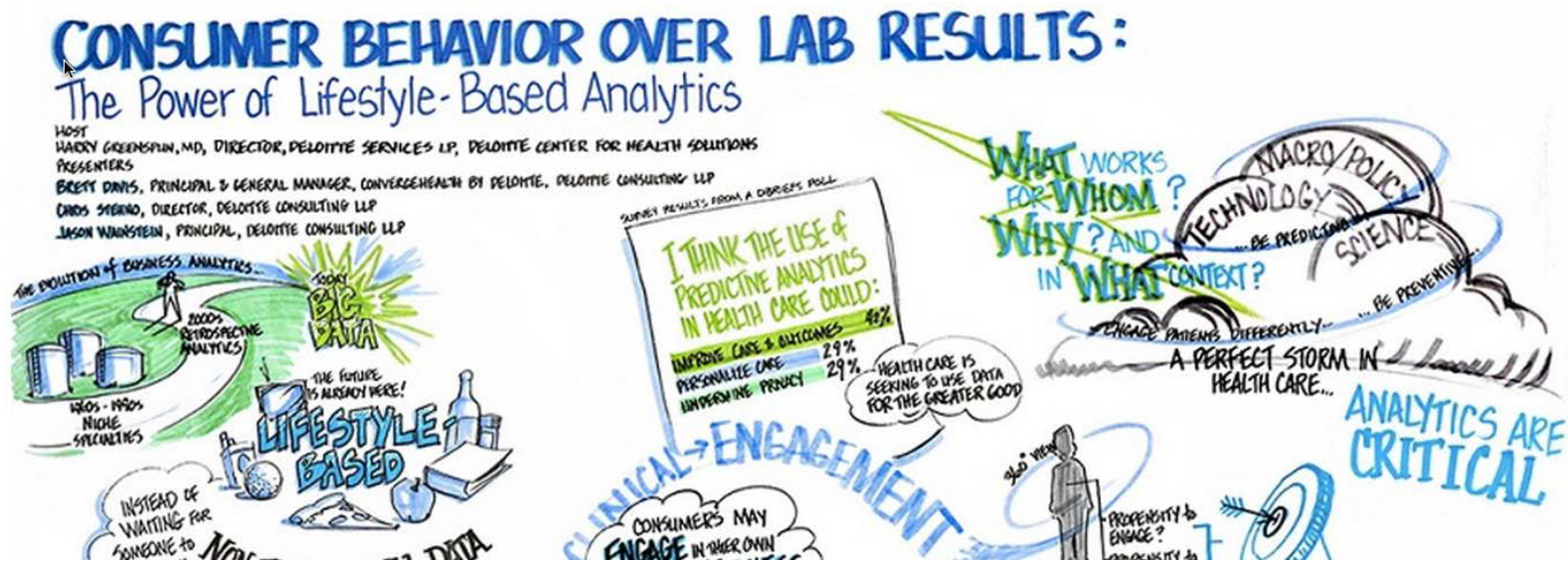
- Increased risks for asthma

Actions: Administer spirometer test at next physical

Data depicted here is for example only and does not represent actual individuals

Lifestyle data to predict lifestyle diseases

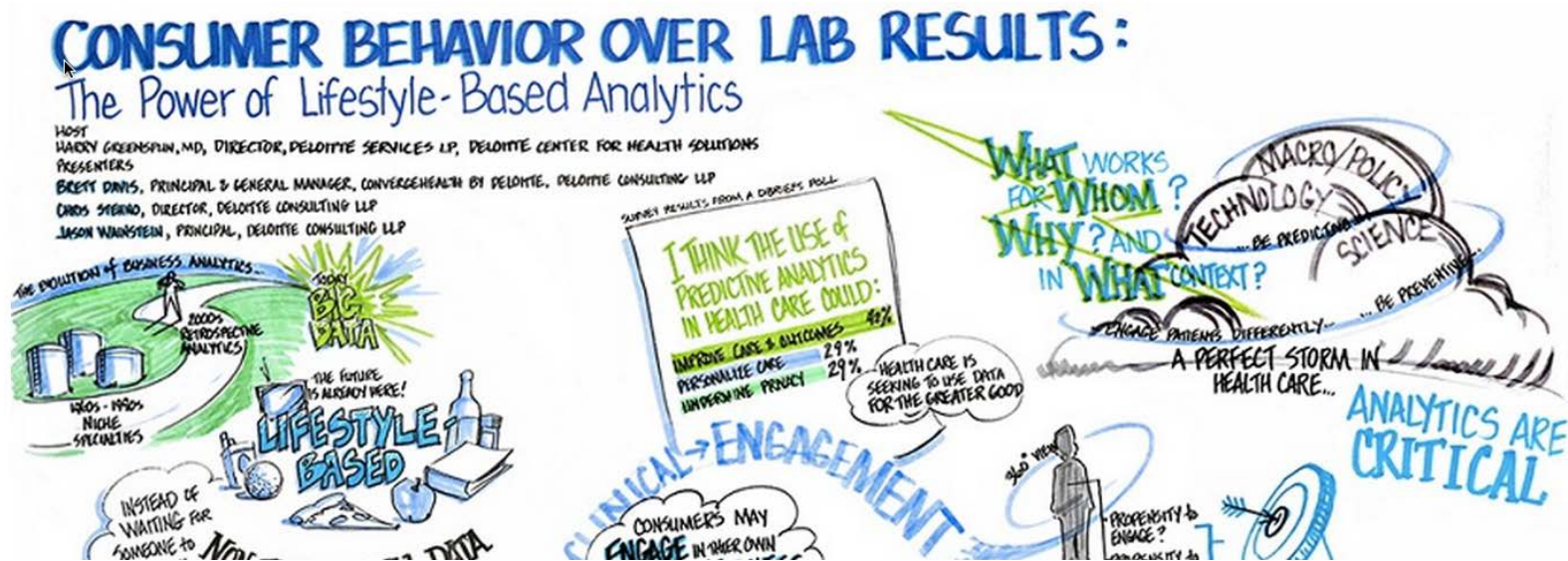
Lifestyle and medical data can be used to predict individuals' healthcare utilization and likelihood of various disease states.



The last mile problem

Lifestyle and medical data can be used to predict individuals' healthcare utilization and likelihood of various disease states.

But once we've identified the highest risks, what can be done to change behavior?



House calls and health coaching

Lifestyle and medical data can be used to predict individuals' healthcare utilization and likelihood of various disease states.

But once we've identified the highest risks, what can be done to change behavior?

Promising behavioral strategies:

- *Health coaches for comorbid seniors*
- *"House calls" for root cause analysis of hospital ER "frequent fliers"*
- *Workplace health initiatives*
- *"Social Physics"*

Another Thought: analytics could be used to guide the hiring and matching of health coaches with patients.



Precision medicine and behavioral health



THE ECONOMIC TIMES

Jana Care: Sidhant Jena's start-up develops lifestyle app to help manage 'diabetes'

Feb 23, 2014, 04.00AM IST



The Aina Device

A mobile diagnostic platform that measures the following parameters:

- Blood Glucose
- HbA1C
- Lipids-HDL,LDL,TrG
- Creatinine
- Haemoglobin

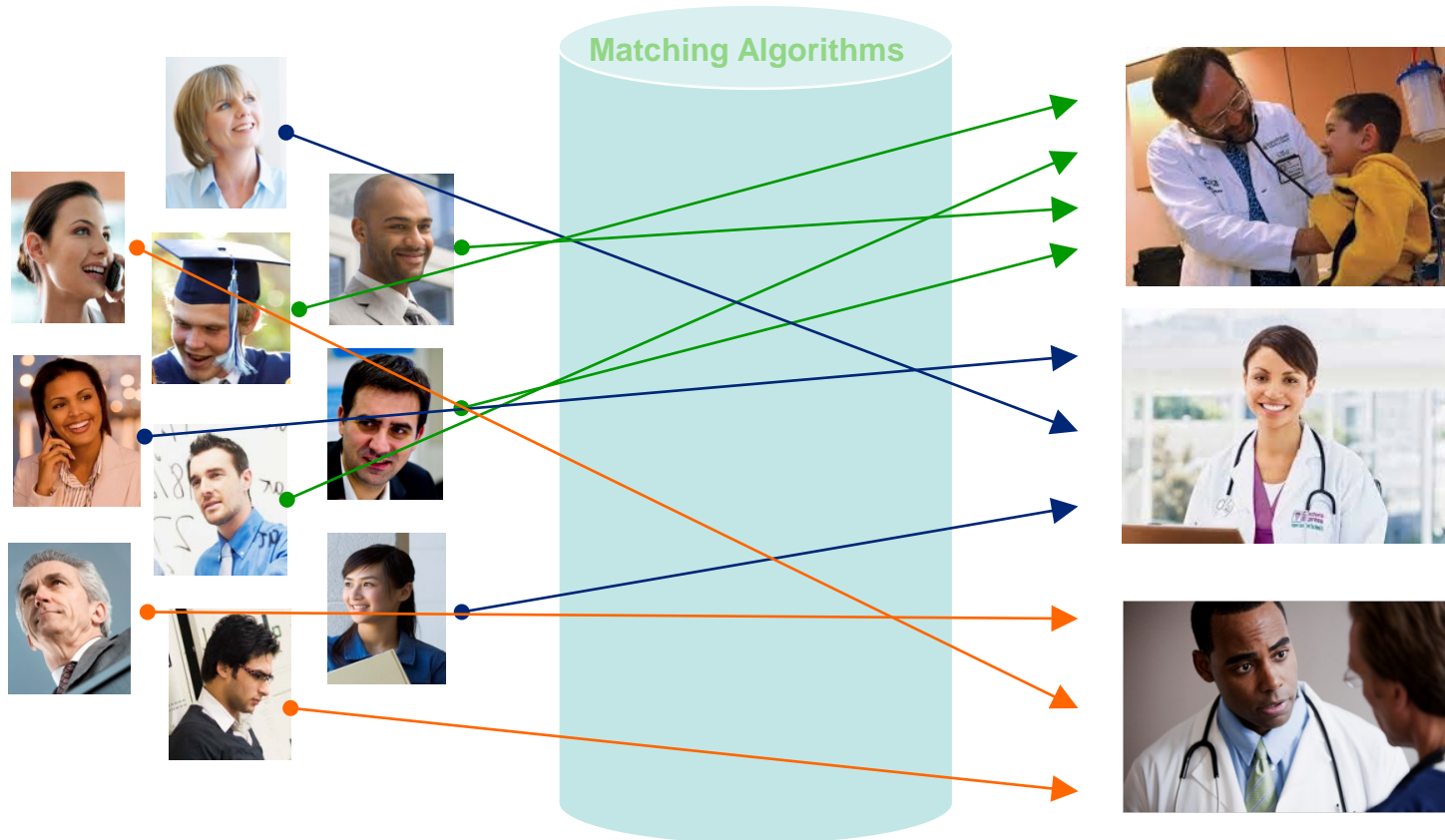


One device many uses

- In-Patient Management (Hospitals)
- Self Monitoring (Patients)
- Screening (Health Workers)

Customer matching

Companies like Match.com and eHarmony.com use sophisticated algorithms factoring in stated preferences, behavioral patterns on their website and triangulation methods to find compatible matches. Similar methods have been used to match prospects to Agents in the sales process. Now this methodology is being used to match members to providers aiding in member satisfaction ratings and member retention.



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