Oracle Health Sciences Global Business Unit

Joel Haspel
Director, Health Sciences Strategy
October, 2014

ORACLE HEALTH SCIENCES

ORACLE

Copyright © 2014 Oracle and/or its affiliates. All rights reserved. |

Safe Harbor Statement

The following is intended to outline our general product direction. It is intended for information purposes only, and may not be incorporated into any contract. It is not a commitment to deliver any material, code, or functionality, and should not be relied upon in making purchasing decisions. The development, release, and timing of any features or functionality described for Oracle's products remains at the sole discretion of Oracle.

Copyright © 2014 Oracle and/or its affiliates. All rights reserved. | Oracle Confidential – Internal/Restricted/Highly Restricted

Agenda

- Health Sciences Strategy – Joel Haspel – 20 Minutes
- Healthcare Analytics – Joel Haspel – 30 Minutes
- BI at the Business Services Authority – Jeremy Nettle – 10 Minutes
- Health Information Exchange – Joel Haspel – 20 Minutes

Copyright © 2014 Oracle and/or its affiliates. All rights reserved. | Oracle Confidential – Internal/Restricted/Highly Restricted

Agenda

Life Sciences

- Accelerate clinical development
- Support entire drug safety lifecycle
- Enable clinical data aggregation

Healthcare

- Power enterprise healthcare analytics
- Enable provider/payer integration
- Drive personalized medicine

Convergence

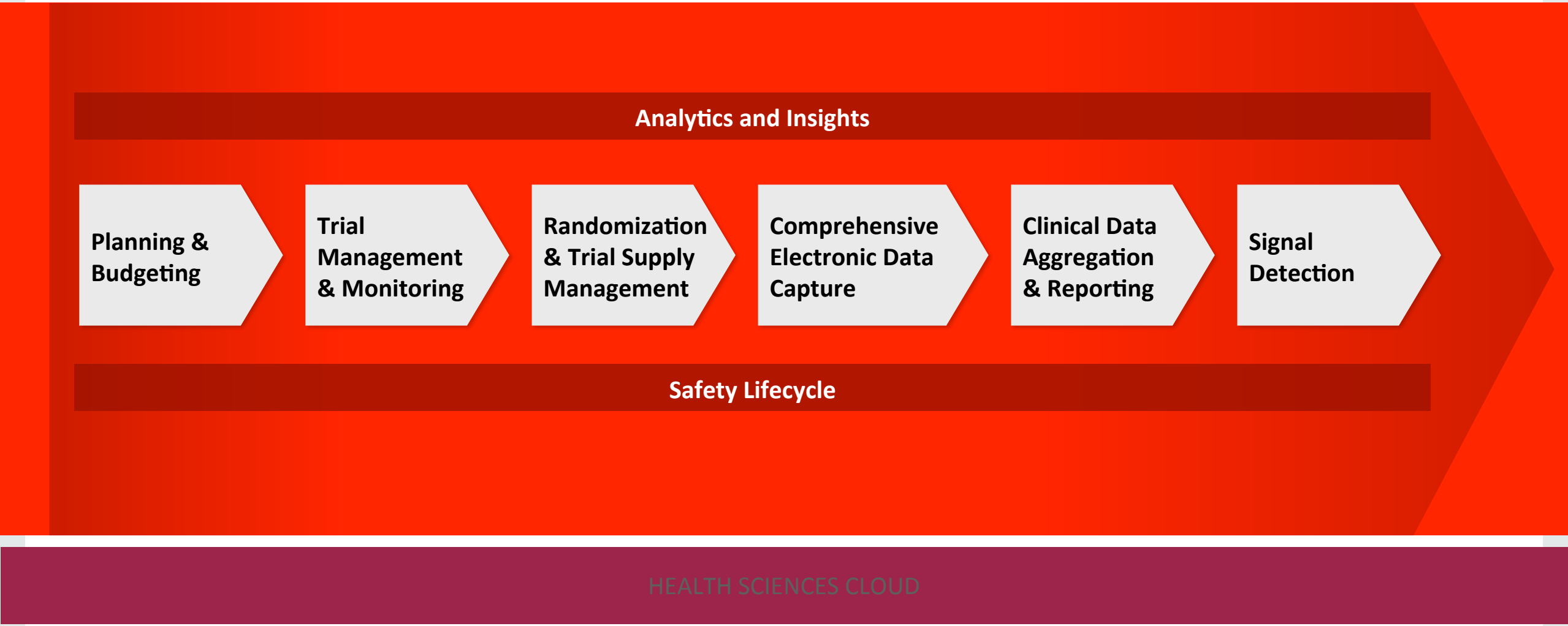
- Intersection of clinical trials and clinical care
- Develop collaboration networks for providers and life sciences companies

Copyright © 2014 Oracle and/or its affiliates. All rights reserved. |

Life Sciences

Copyright © 2014 Oracle and/or its affiliates. All rights reserved. |

Optimizing Clinical Research & Development

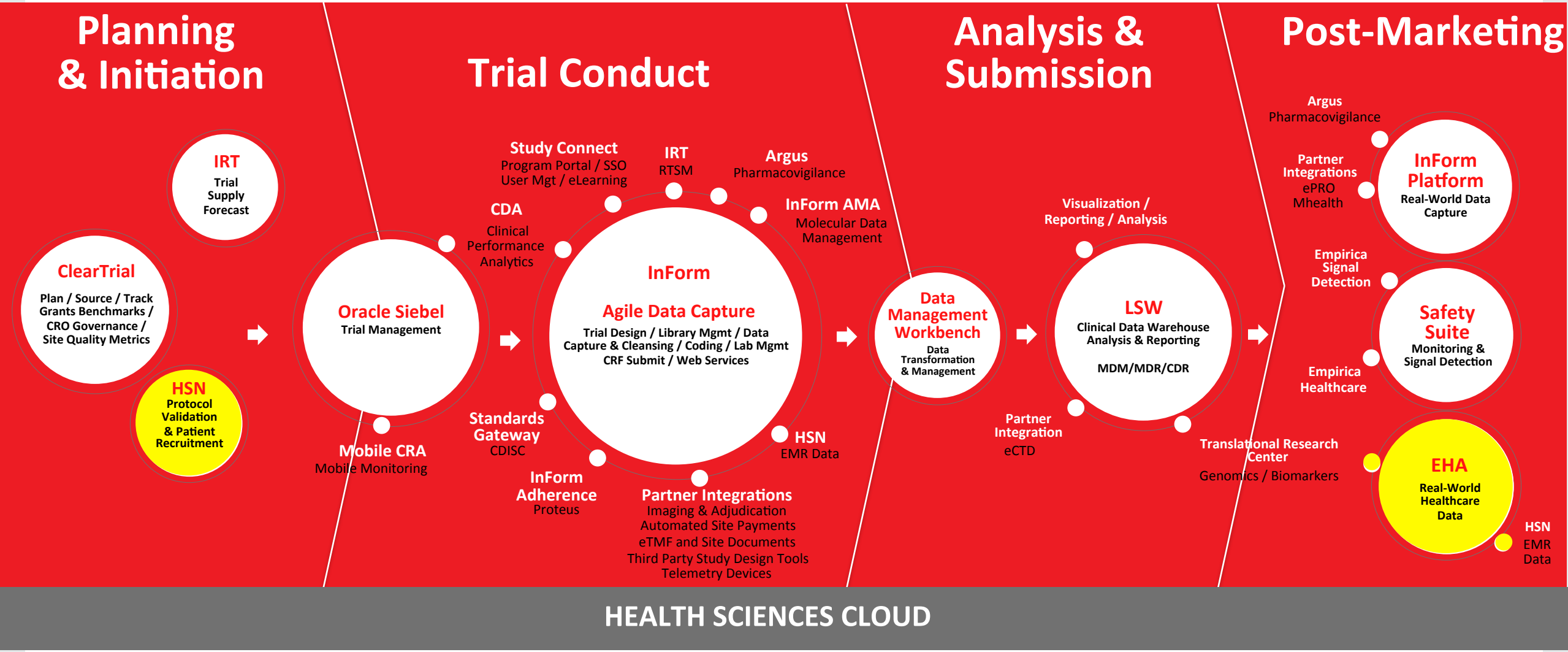


HEALTH SCIENCES CLOUD

ORACLE

Copyright © 2014 Oracle and/or its affiliates. All rights reserved. |

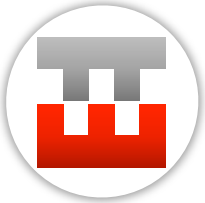
Oracle Health Sciences eClinical Platform



Copyright © 2014 Oracle and/or its affiliates. All rights reserved. |

Recent Oracle Life Sciences Innovations

MOBILITY
INFORM, CRA & ANALYTICS



KEY PRODUCT
& THIRD PARTY INTEGRATIONS

CLINICAL MONITORING CLOUD

RISK BASED
MONITORING

DATA MANAGEMENT
WORKBENCH

REAL-WORLD SAFETY SURVEILLANCE
& COMPARATIVE EFFECTIVENESS

VOICE-ENABLED
(NUANCE)

MEDICATION ADHERENCE (PROTEUS)

ORACLE

Copyright © 2014 Oracle and/or its affiliates. All rights reserved. |

MEDICATION ADHERENCE

proteus® DIGITAL HEALTH

- FDA-approved ingestible sensors
- Captures the body's physiologic responses and behaviors
- Sends digital health information to a mobile app
- Oracle's clinical trial applications customers have exclusive access to real-time data on therapeutic use

ORACLE

Copyright © 2014 Oracle and/or its affiliates. All rights reserved. |

MEDICATION ADHERENCE

proteus® DIGITAL HEALTH

- Medication compliance insight
- Better dose selection
- Fewer Phase III failures
- Improved drug safety

ORACLE

Copyright © 2014 Oracle and/or its affiliates. All rights reserved. |

Oracle Life Sciences

Broadest, best-of-breed applications

Focus on Integration

The highest standards of scalability, security, and privacy

ORACLE

ORACLE

Copyright © 2014 Oracle and/or its affiliates. All rights reserved. |

Healthcare

Copyright © 2014 Oracle and/or its affiliates. All rights reserved. |

Healthcare Providers are Facing:

Changing business models and risk shifting

Margin pressure – cost, revenue, and volume

Consolidation pressure

Aging population and management of chronic diseases

Increased complexity in regulation

Immediate Focus:

- Operational effectiveness
- Risk-based revenue

Evolves Over Time:

- Patient engagement and compliance
- Care coordination
- Population health
- Precision medicine

ORACLE

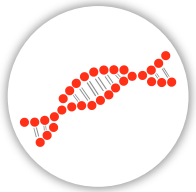
Copyright © 2014 Oracle and/or its affiliates. All rights reserved. |

Oracle Healthcare Portfolio

Enterprise Healthcare Analytics

- Clinical Performance
- Population Health
- Financial Performance
- Safety & Comparative Effectiveness

Translational Medicine



- Biomarker Discovery
- Patient Cohort ID & Selection
- Statistical & Scientific Analysis
- Molecular Basis of Disease

Health Sciences Network

- Collaborative R&D
- Clinical Trial Patient Recruitment

Health Information Exchange

- Patient-Centered Care Coordination
- Patient and Provider Identification

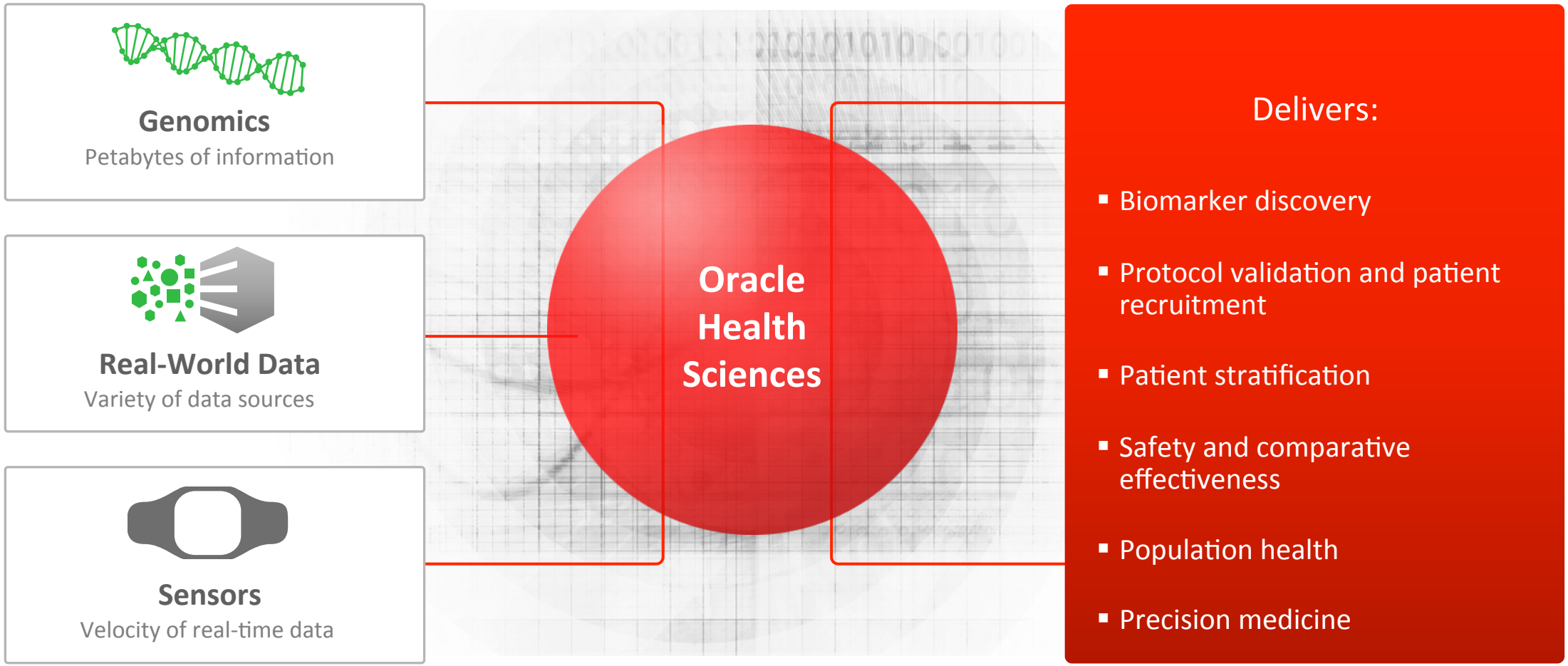
Copyright © 2014 Oracle and/or its affiliates. All rights reserved. |

Convergence

ORACLE

Copyright © 2014 Oracle and/or its affiliates. All rights reserved. |

Harnessing Big Data for Life Sciences & Healthcare



Copyright © 2014 Oracle and/or its affiliates. All rights reserved. |

Effectiveness of Most Drugs

Major Drug	Drug Effectiveness		Cost of Ineffectiveness to Healthcare System
Hypertension Drugs ACE Inhibitors	10-30%		$390 million – $1.2 billion
Heart Failure Drugs Beta Blockers	15-25%		$345 million – $575 million
Anti Depressant Drugs SSRIs	20-50%		$2.3 billion – $5.8 billion
Cholesterol Drugs Statins	30-70%		$3.8 billion – $8.8 billion
Asthma Drugs Beta-2-agonists	40-70%		$560 million – $1.0 billion

Source: The Personalized Medicine Coalition

Copyright © 2014 Oracle and/or its affiliates. All rights reserved. |

Improving Population Health and Patient Outcomes

CURRENT

TRANSFORMATION

Combining Clinical and OMICS data

- Targeted treatments
- More effective trials
- Faster time to market
- Improved safety
- Dramatically lower costs

Copyright © 2014 Oracle and/or its affiliates. All rights reserved. |

For Transformative Research & Development

Oracle Health Sciences Translational Research Center

Our Customers & Strategic Development Partners

Intermountain Healthcare

The University of Texas MD Anderson Cancer Center
Making Cancer History®

UPMC Life Changing Medicine

Mayo Clinic

Penn Medicine

wellcome trust

Moffitt Cancer Center

Roche

Cancer Research UK

Merck

Erasmus MC University Medical Center Rotterdam

Regeneron science to medicine™

Introducing

Oracle Health Sciences InForm

Advanced Molecular Analytics

Enables Life Sciences Organizations to Incorporate Genomic Data into Clinical R&D for Targeted, Biomarker-Driven Clinical Trials

ORACLE

Copyright © 2014 Oracle and/or its affiliates. All rights reserved. |

Cloud-Based Collaborative R&D

Oracle Health Sciences Network

Healthcare Provider Participants

Life Sciences Participants

Provides:

- Protocol validation and patient recruitment
- Safety monitoring
- Disease and patient registries

While Ensuring:

- Full control of your de-identified data
- Protection of Institutional IP
- Respect for patient consent
- Full HIPPA compliance

Network Participants Include:

Aurora Health Care · UPMC LIFECHANGINGMEDICINE · Penn Medicine · Joslin Diabetes Center · Genetic Alliance · WIN Worldwide Innovative Networking in personalized cancer medicine · PACeR Partnership to Advance Clinical Electronic Research

ORACLE

Copyright © 2014 Oracle and/or its affiliates. All rights reserved. |

Partner Opportunities to Differentiate

- Implementation: Configuration and Integration
- Asset Development
- Hosting
- BPO
- Business Consulting

Copyright © 2014 Oracle and/or its affiliates. All rights reserved. | Oracle Confidential – Internal/Restricted/Highly Restricted

Healthcare Analytics

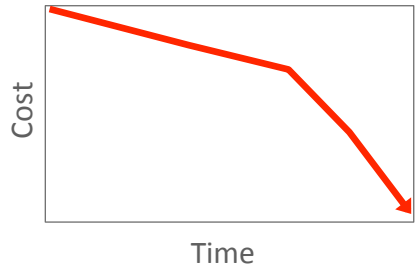
Joel Haspel

ORACLE

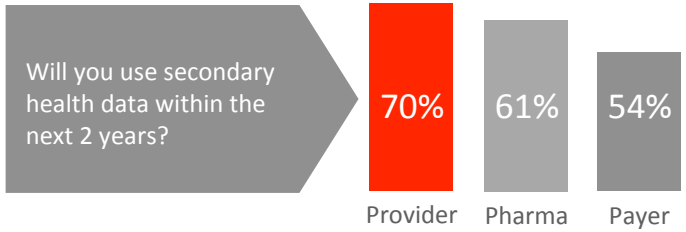
Copyright © 2014 Oracle and/or its affiliates. All rights reserved. |

Changes Impacting Healthcare

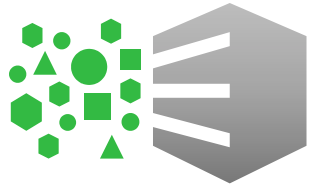
Significant reduction in cost of genome sequencing



Increase in real-world data



Aggregation and analysis of Big Data



More than half of clinical trials already have a molecular biomarker component

Patient stratification to identify population subsets most likely to respond to a therapy

Cloud technologies are enhancing R&D collaboration

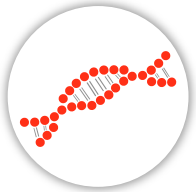
Copyright © 2014 Oracle and/or its affiliates. All rights reserved. |

Oracle Healthcare Portfolio

Enterprise Healthcare Analytics

- Clinical Performance
- Population Health
- Financial Performance
- Safety & Comparative Effectiveness

Translational Medicine



- Biomarker Discovery
- Patient Cohort ID & Selection
- Statistical & Scientific Analysis
- Molecular Basis of Disease

Health Sciences Network

- Collaborative R&D
- Clinical Trial Patient Recruitment

Health Information Exchange

- Patient-Centered Care Coordination
- Patient and Provider Identification

Copyright © 2014 Oracle and/or its affiliates. All rights reserved. |

Analytics Impact in Healthcare Delivery

Moderately obese populations with low self-reported quality of life scores

Increased prevalence of sleep apnea

Treating sleep apnea improves quality of life

New evidenced-based guideline

Care gaps at point of care

Ensure adoption across their enterprise

Predict best treatment for a particular patient

Correlate cost savings with better outcomes

Improved payer contracting

↑ QUALITY
↓COST

Sleep apnea-induced morbidity in the moderately obese population

DATA MINING

COHORT IDENTIFICATION

"INTEGRATED VIEW" ANALYTICS THAT COMBINE CLINIC DATA WITH FINANCIAL AND OPERTATIONAL DATA

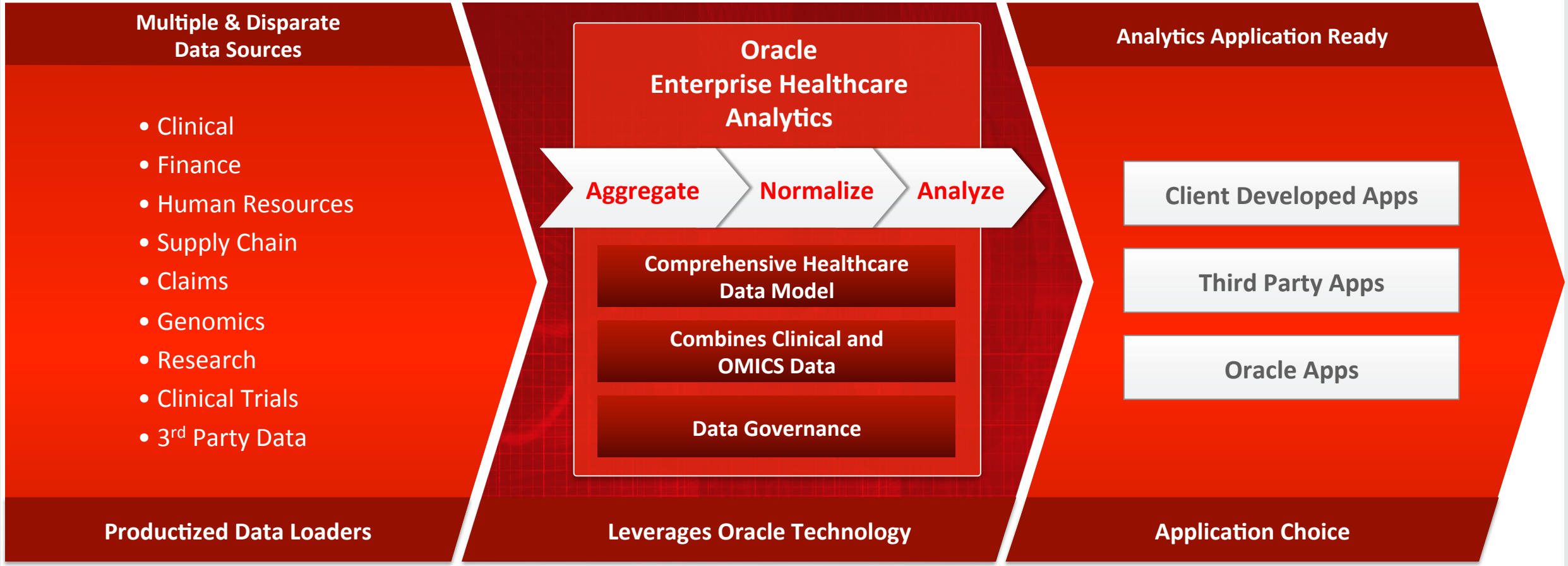
PREDICTIVE ANALYTICS

REPORTS, DASHBOARDS, & PERFORMANCE MANAGEMENT SYSTEMS

"REAL TIME" POINT OF CARE ANALYTICS

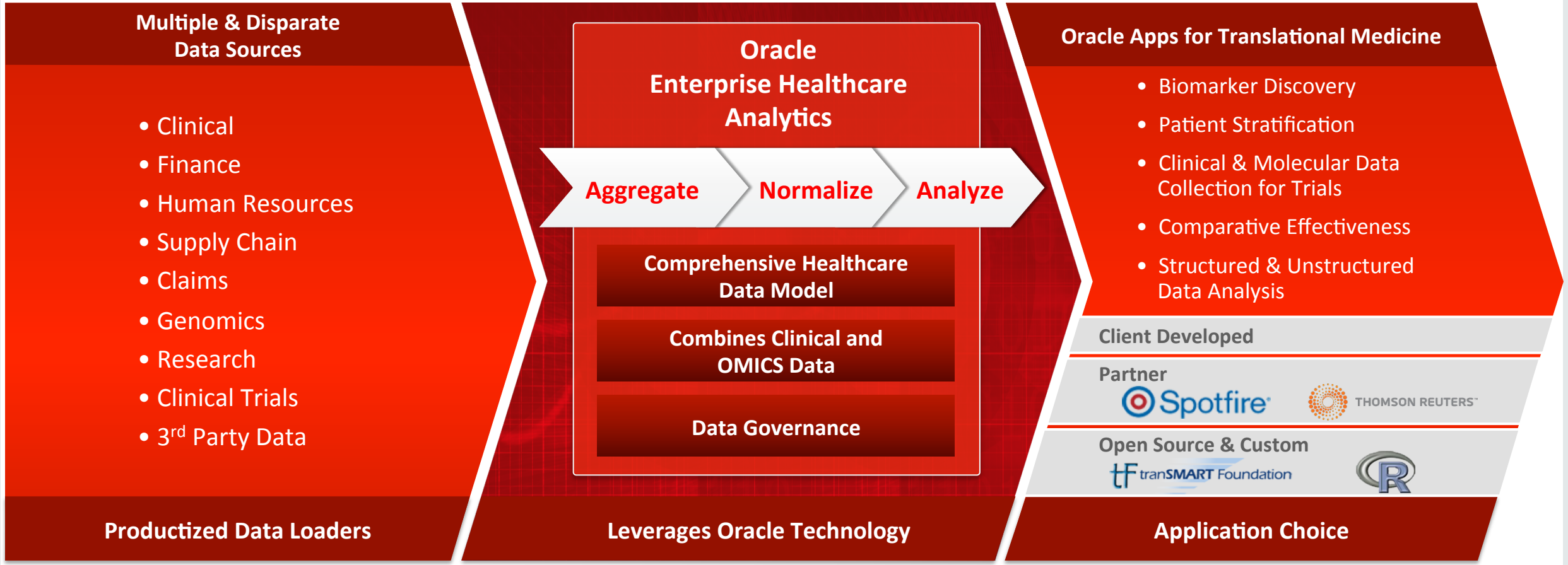
Copyright © 2014 Oracle and/or its affiliates. All rights reserved. |

Powering Enterprise Healthcare Analytics



Copyright © 2014 Oracle and/or its affiliates. All rights reserved. |

Powering Enterprise Healthcare Analytics



Copyright © 2014 Oracle and/or its affiliates. All rights reserved. |

Healthcare Analytics Data Integration

Product-Based Solution for Healthcare Data Integration, Warehousing, and Analytics

Clinical

Financial

Administrative

Research

Oracle Healthcare Analytics Data Integration (OHADI)

Consolidation

Integration

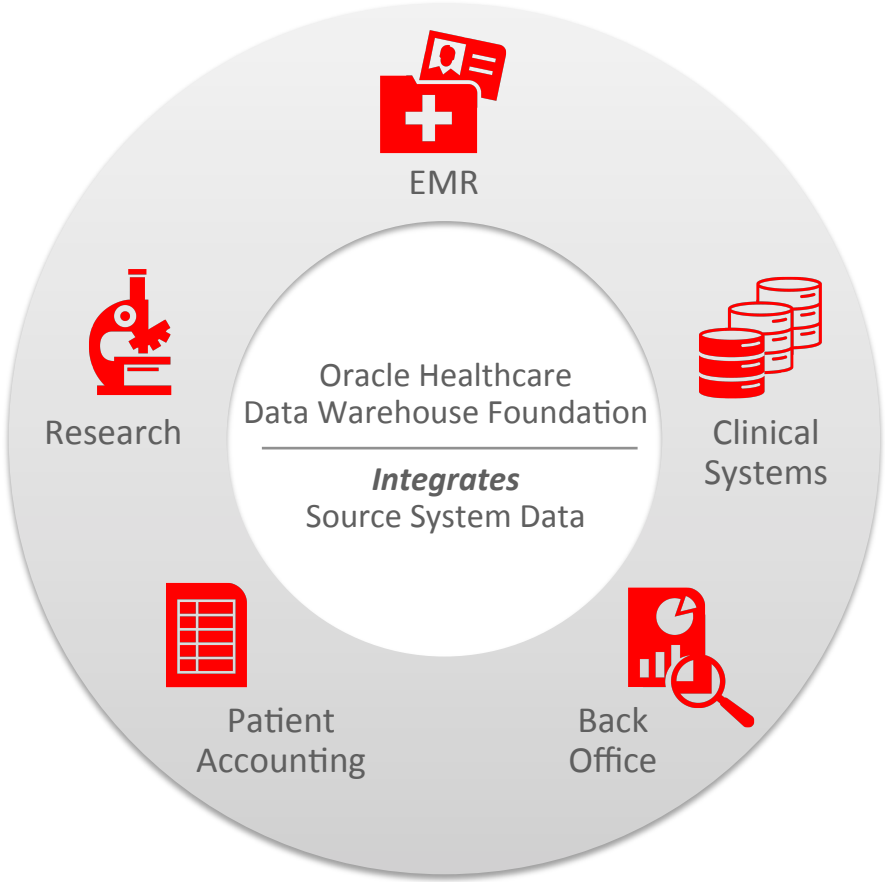
Validation

- Loads disparate source data into Oracle's Healthcare Data Warehouse Foundation
- Enables better decisions with comprehensive, cross system insights
- Supports data security preventing the proliferation of errors
- Significantly lowers the cost and risk of data integration and management

Copyright © 2014 Oracle and/or its affiliates. All rights reserved. |

Healthcare Data Warehouse Foundation

Supports Prebuilt and Custom BI and Performance Management Applications

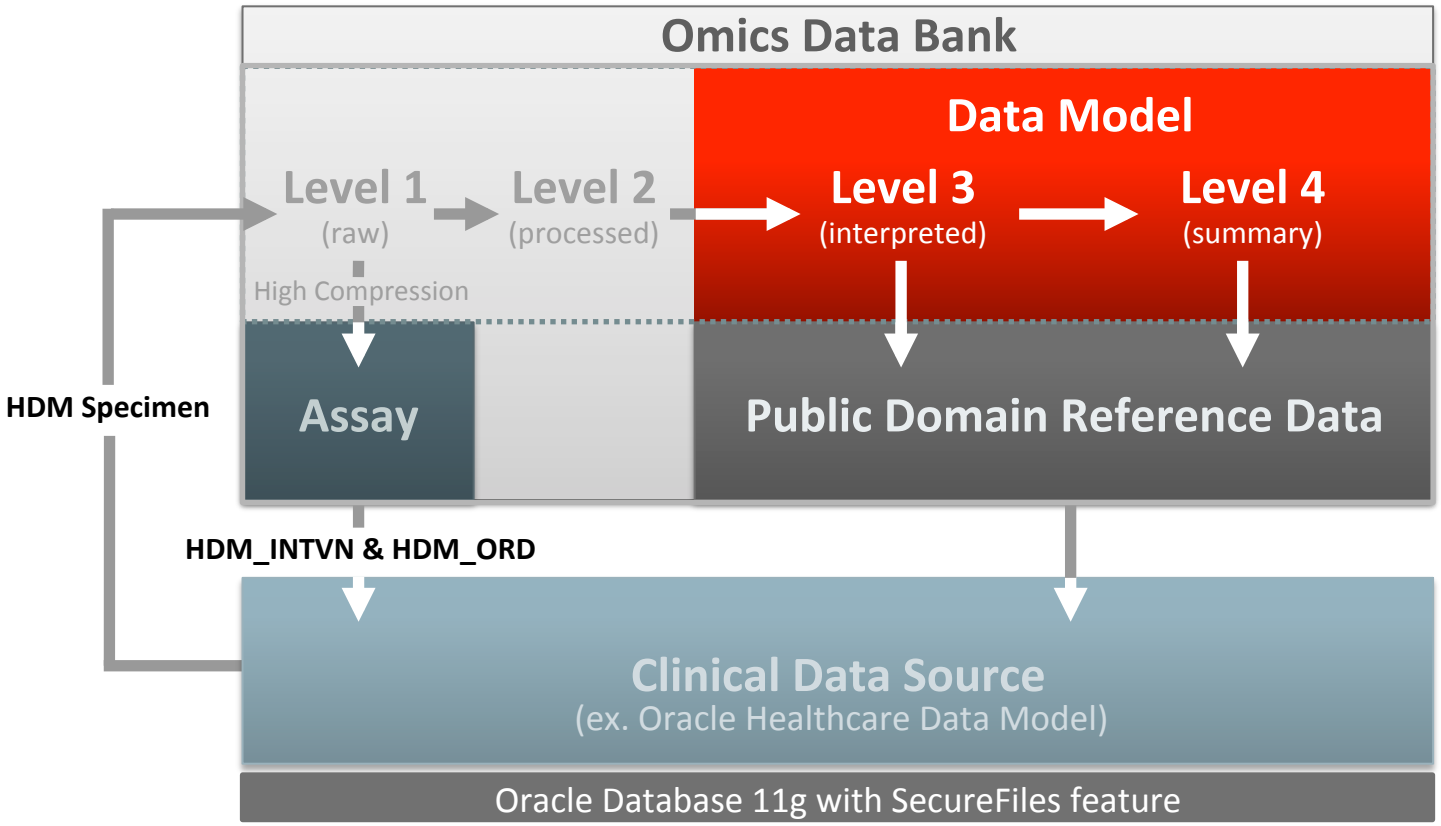


- Easily extensible in any application environment
- Creates holistic enterprise view of information
- Includes more than 1,200 entities and 11,000 attributes
- Supports “meaningful use” phase 1 quality content

Copyright © 2014 Oracle and/or its affiliates. All rights reserved. | Oracle Confidential – Internal/Restricted/Highly Restricted

Omics Data Bank

Unprecedented Power and Agility in the Pursuit of Biomarkers

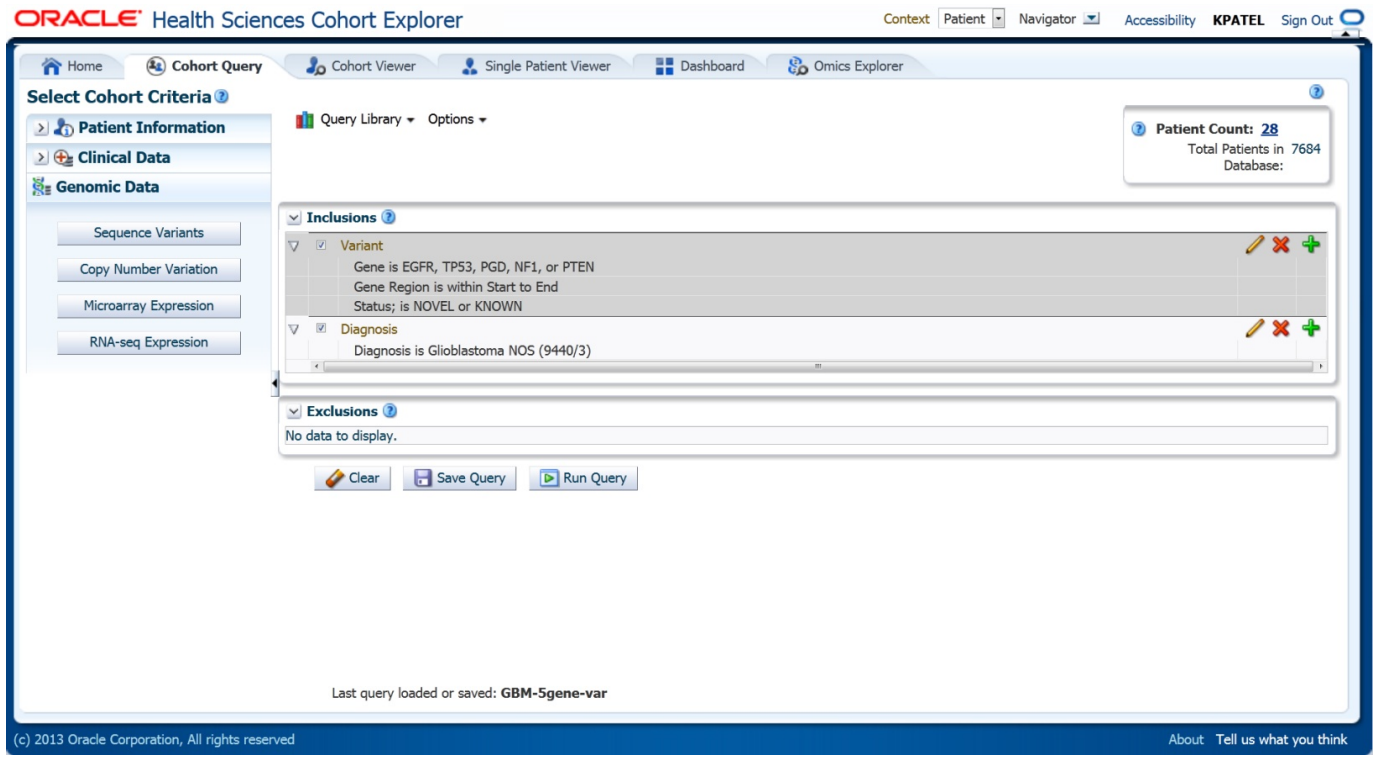


- Enables turnkey integration and analysis of multiple types of molecular data
- Supports cross-platform and cross-modality
- Optimized for real-time querying
- Compatible with clinical data sources of your choice

Copyright © 2014 Oracle and/or its affiliates. All rights reserved. | Oracle Confidential – Internal/Restricted/Highly Restricted

Cohort Explorer

Web-Based Interface to Identify and Explore Patient Subpopulations



- Enables cross pheno-genotype patient stratification
- Offers seamless, integrated views of clinical and OMICS data
- Provides individual patient-level longitudinal views
- Delivers real-time metrics on patient populations with dashboards
- Features state-of-the-art genomic visualizers

Copyright © 2014 Oracle and/or its affiliates. All rights reserved. | Oracle Confidential – Internal/Restricted/Highly Restricted

Improving Population Health and Patient Outcomes

CURRENT

TRANSFORMATION

Combining Clinical and OMICS data

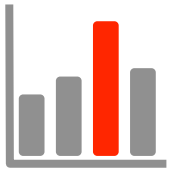
- Targeted treatments
- More effective trials
- Faster time to market
- Improved safety
- Dramatically lower costs

Copyright © 2014 Oracle and/or its affiliates. All rights reserved. |

Leverage Clinical and Genomics Data in One System

Find patients that are poor responders for drug Y and have a mutation in the promoter region of Gene X

Identify the expression level of TP53 mutants by cancer tissue



Quantify the number of disease Z patients responding to treatment with a chromosome 18 deletion and blood samples in the biobank

Copyright © 2014 Oracle and/or its affiliates. All rights reserved. |

Measurable Impact on Healthcare

reduction in chemotherapy use
would occur if women with breast cancer receive a genetic test of their tumor prior to treatment

17,000

strokes could be prevented each year
if a genetic test is used to properly dose the blood thinner warfarin

$604M

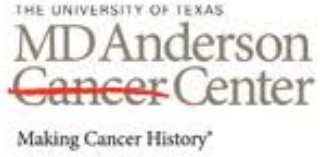
in annual health savings
would be realized if patients with metastatic colorectal cancer receive a genetic test for the KRAS gene prior to treatment

Source: http://www.personalizedmedicinecoalition.org/Userfiles/PMC-Corporate/file/pmc_personalized_medicine_by_the_numbers.pdf

ORACLE

Copyright © 2014 Oracle and/or its affiliates. All rights reserved. |

Our Customers



Copyright © 2014 Oracle and/or its affiliates. All rights reserved. |

Case Studies

Copyright © 2014 Oracle and/or its affiliates. All rights reserved. |

MD Anderson

THE UNIVERSITY OF TEXAS MD Anderson Cancer Center

CASE STUDY

Background / Needs

- Moon Shots initiative to **cure 6 cancers in 5 years**
- **Single platform** for clinical and genomic data aggregation and analysis
- **Scalability** to address annual data growth
- **One source of truth** for all data

Results With Oracle

Fast implementation – in use within 6 months

Supporting more than 1 million patients spanning a 70-year period

Reduced complex queries time from weeks to minutes

ORACLE

Copyright © 2014 Oracle and/or its affiliates. All rights reserved. |

UPMC

CASE STUDY

Background / Needs

- **Aggregate data** from 200+ sources
- Information management strategy to **integrate clinical and OMICS data**
- Provide **better clinical insights** for:
  - Treatment effectiveness
  - Cost variations
  - Disease prevention
- **Simplify data delivery** for analysis

Results With Oracle

Rapid integration of clinical and genomic information

Preliminary **identification of genes and pathways** unique to pre- and post-menopausal breast cancer patients

Consolidation of multiple data marts

Copyright © 2014 Oracle and/or its affiliates. All rights reserved. |

Mayo Clinic

CASE STUDY

Background / Needs

- Support **Center for Individualized Medicine**
- A **single infrastructure** to support activities spanning research and clinical practice
- Appropriate **privacy and security controls**

Results With Oracle

Managing:

- Low throughput **gene-centric panels**
- High throughput **whole exome & whole genome sequences**

Copyright © 2014 Oracle and/or its affiliates. All rights reserved. |

Cancer Research UK

CASE STUDY

Background / Needs

- **National collaboration** with UK government and AstraZeneca and Pfizer
- Build a **national database** of anonymized of tumor genetic information, treatments and outcomes
- **Genetic testing** of tumors linked to clinical data

Results With Oracle

Tested 2,000 tumors across 24 clinical sites

Two new clinical trials in development

Copyright © 2014 Oracle and/or its affiliates. All rights reserved. |

Oracle Enterprise Healthcare Analytics Delivers

The most comprehensive data model and platform in healthcare

Combined clinical and OMICS data for translational medicine

The highest standards of scalability, security, and privacy

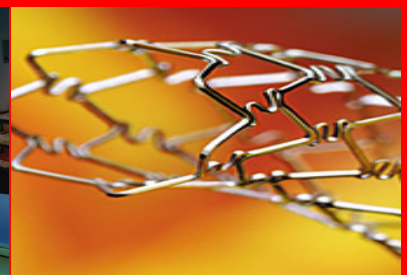
Copyright © 2014 Oracle and/or its affiliates. All rights reserved. |

Partner Opportunities to Differentiate

- Implementation: Configuration and Integration
- Asset Development
- Hosting: Analytics as a Service
- BPO
- Business Consulting

Copyright © 2014 Oracle and/or its affiliates. All rights reserved. | Oracle Confidential – Internal/Restricted/Highly Restricted

NHS



ORACLE®

Understanding Potential Fraud and Error

Jeremy Nettle, Global Client Advisor, NHS and GSK

Industry Day 2014
Thursday, 16th October 2014

NHS
Business Services Authority

Supporting the NHS, supplying the NHS, protecting the NHS

ORACLE

Copyright © 2014 Oracle and/or its affiliates. All rights reserved. |

What is the cost of Fraud in the NHS today

"**Fraud is costing the NHS £5bn a year, with a further £2bn lost to financial errors, the former head of its anti-fraud section says**.

The amount lost to fraud alone could pay for nearly 250,000 new nurses, a report seen by Panorama suggests.

The NHS must "get on with tackling the problem", said Jim Gee, co-author of the Portsmouth University study and ex-director of NHS Counter Fraud Services."

http://www.bbc.co.uk/news/health-26654001

Jim Gee, report co-author, explains how the figures in his report were calculated

Copyright © 2014 Oracle and/or its affiliates. All rights reserved. |

Types of Fraud in the NHS

Deaf couple and their children 'scammed £800,000 in benefits by submitting fake invoices for sign language interpreters'

Shahab Reza has admitted scamming the state out of thousands
His wife, Shehnaz, and their children Zainab and Abbas deny part in plot
Court hears invoices were submitted for sign language translators
But, prosecutors claim, the family used the money for luxury lifestyle

Sept 14 2014

Read more:
http://www.dailymail.co.uk/news/article-2751720/Deaf-couple-family-scammed-800-000-benefits-submitting-fake-invoices-sign-language-interpreters.html#ixzz3DIKiZA5N

Temporary hospital executives were paid £1,000 per day

Gazette News, 4 days ago

Senior executives at Colchester's hospital trust were paid more than £1,000 per day, it has been revealed.

A dentist who defrauded the NHS out of £1.4m has been told to pay back the money.

Dr Joyce Trail, of Park Drive, Little Aston, Sutton Coldfield, was jailed for seven years, in October 2012.

A compensation order of £1,376,423.83 has now been issued at Warwick Crown Court, meaning any assets up to this amount can be claimed by the NHS.

Copyright © 2014 Oracle and/or its affiliates. All rights reserved. |

NHS Business Services Authority

NHS
Business Services Authority

Supporting the NHS, supplying the NHS, protecting the NHS

The NHS Business Services Authority is a Special Health Authority and an Arms Length Body of the Department of Health which provides a range of critical central services to NHS organisations, NHS contractors, patients and the public.

Service portfolio includes:

- Management of the NHS Pension Scheme in England and Wales which has over 2.6 million members and receives contributions of over £9 billion per annum.

- Administration of the European Health Insurance Card (EHIC) scheme (in the UK) processing over 6.6 million EHIC cards this year. 23.5million people in the UK have an active EHIC card.

- Management of a 10-year outsourced Master Services Agreement (MSA) for the delivery of supply chain services to the NHS, supporting the planned delivery of around £1 billion of savings to the NHS over the life of the Agreement.

- Provision of strategic procurement and contract management expertise on Department of Health (DH) supply chain strategic contracts and programmes across the health sector.

- Prescriptions dispensed in primary care settings which involves processing approximately 1 billion prescription items and payments
  Payments to pharmacists (in England) for prescribing totaling over £9 billion each year.

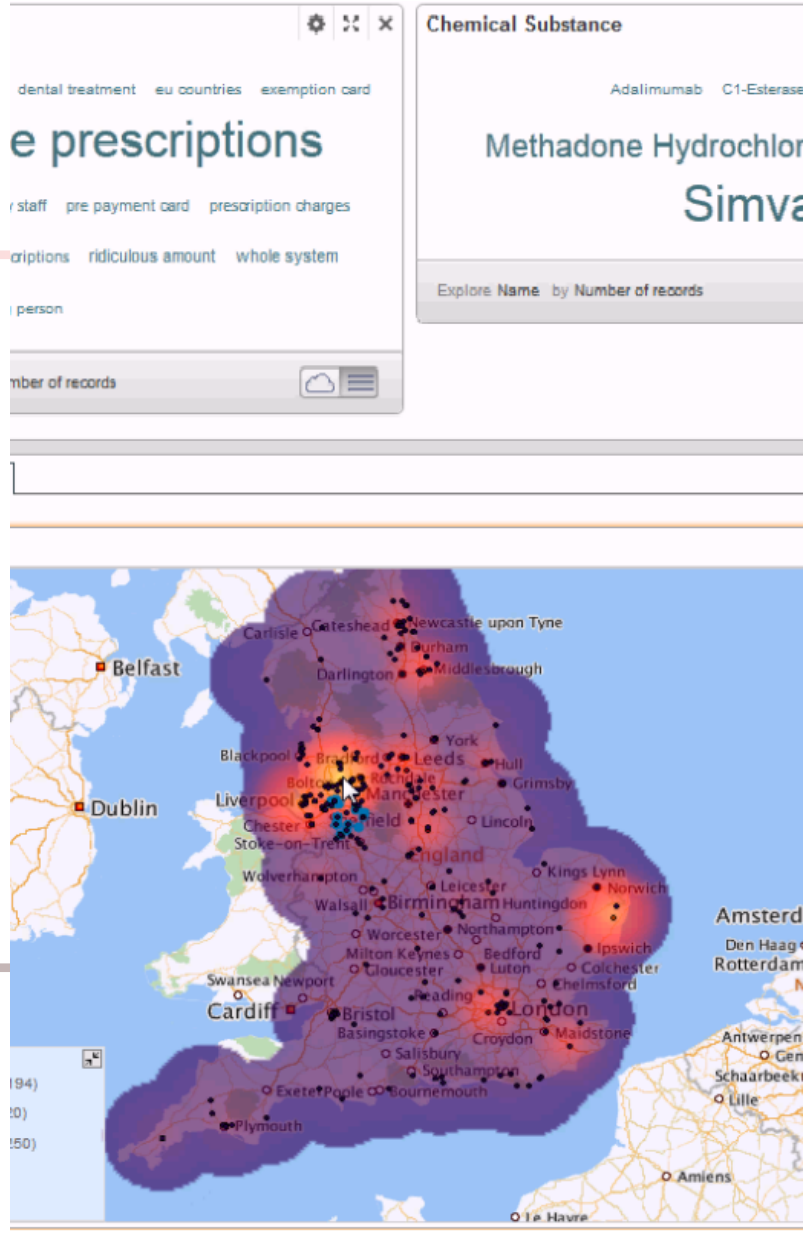
- Payments to dentists for work undertaken on NHS contracts which involves processing approximately 44 million dental forms and payments totaling over £2.5 billion in England and Wales.

ORACLE

Copyright © 2014 Oracle and/or its affiliates. All rights reserved. |

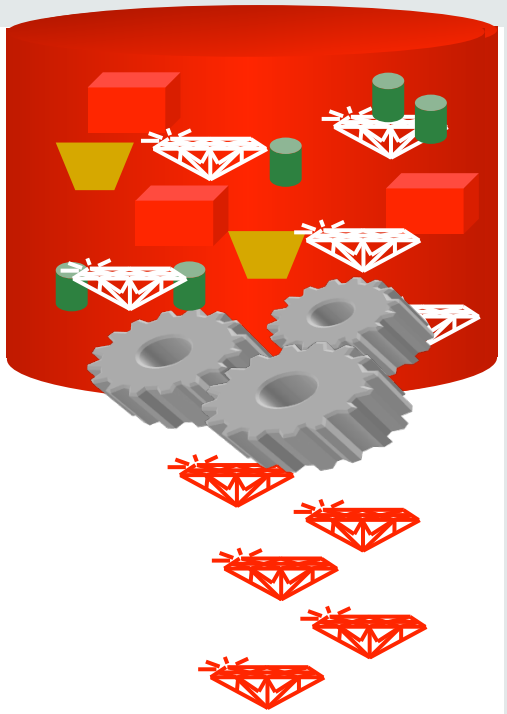
Agenda

- Architecture
- Business value
- Reusability
- Portability



Copyright © 2014 Oracle and/or its affiliates. All rights reserved. |

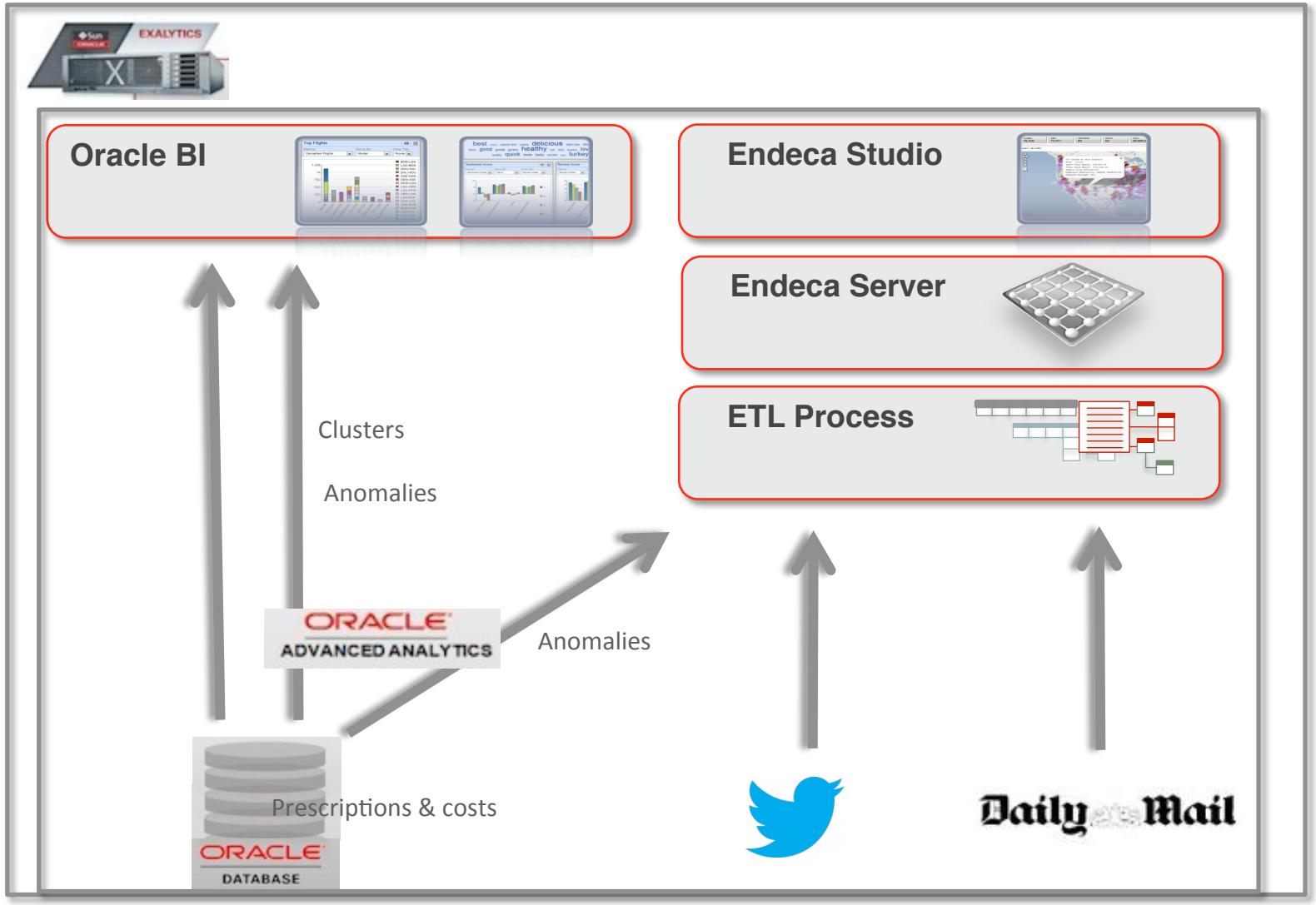
Fraud Detection



- Sift through data to find hidden patterns, discover new insights, and make predictions
- Techniques:
  - Predict a behavior *(Classification)*
  - Predict or estimate an event/value *(Regression)*
  - Segment a population *(Clustering)*
  - Identify factors more associated with fraud *(Attribute Importance)*
  - Find profiles of targeted people or items *(Decision Trees)*
  - Determine important relationships for fraud *(Associations)*
  - Find fraudulent or “rare events” *(Anomaly Detection)*

Copyright © 2014 Oracle and/or its affiliates. All rights reserved. |

Behind the scenes



Copyright © 2014 Oracle and/or its affiliates. All rights reserved. |

Business value

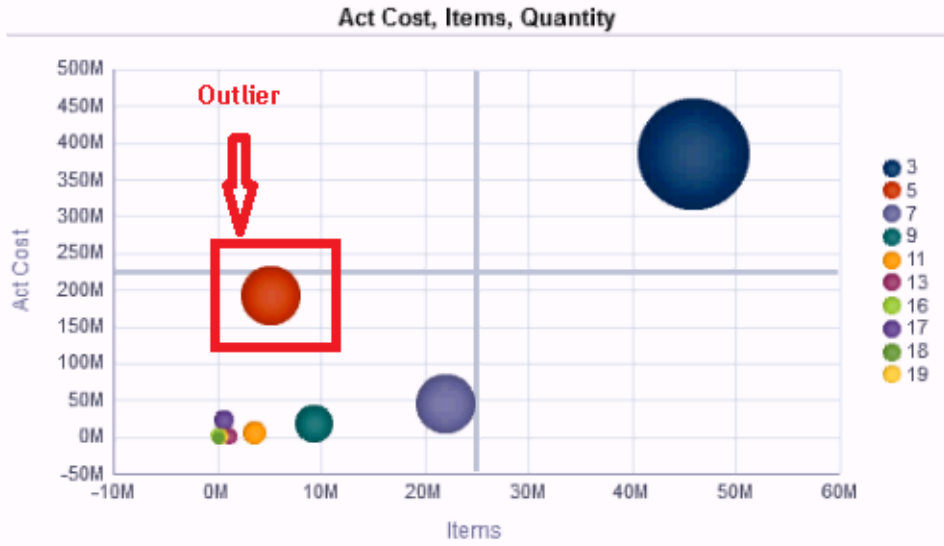
Identify areas of investigation

Home page | Cost Analysis | BNF Analysis | **Data Mining Analysis**

Anamolies with probability > 0.6

Practice Name	County	Bnf Code	Bnf Name	Actual Cost	Items	NIC	Quantity
ADDICTIONS SERVICE	NEWCASTLE UPON TYNE	0410030C0AAAFAF	Methadone HCl_Mix 1mg/1ml S/F	£12,018.29	1,348	£12,843.97	920,752
BEACON MEDICAL PRACTICE	LINCOLNSHIRE	0212000Y0AAADAD	Simvastatin_Tab 40mg	£2,656.56	2,444	£2,811.21	63,480
BOLTON COMMUNITY DRUG AND ALCOHOL SERV		0410030C0AAAAAA	Methadone HCl_Mix 1mg/1ml	£18,128.21	1,877	£19,248.37	1,500,164
C1 ESTERASE		0304030F0AAAAAA	C1-Esterase Inhibitor_Inj 500u Vl + Dil	£44,673.66	21	£48,400.00	88
COASTAL MEDICAL GROUP		0103050P0AAAAAA	Omeprazole_Cap E/C 20mg	£4,170.19	2,410	£4,459.15	93,157
DONCASTER DRUG & ALCOHOL SERVICES		0410030C0AAAFAF	Methadone HCl_Mix 1mg/1ml S/F	£11,847.18	2,075	£12,516.14	904,199

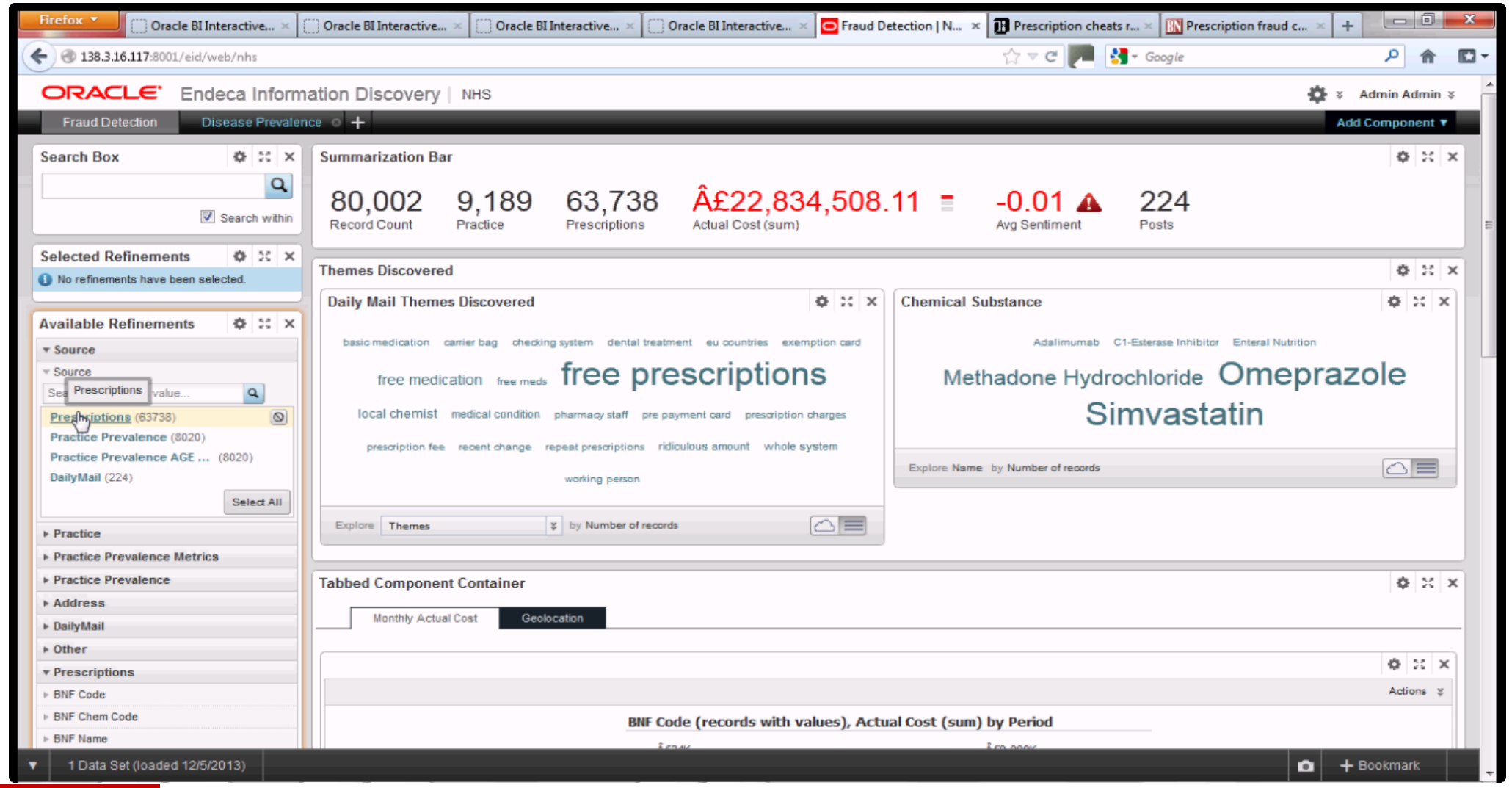
Bubble cluster



Copyright © 2014 Oracle and/or its affiliates. All rights reserved. | Copyright 2011 Oracle and it's affiliates. All rights reserved.

Business value

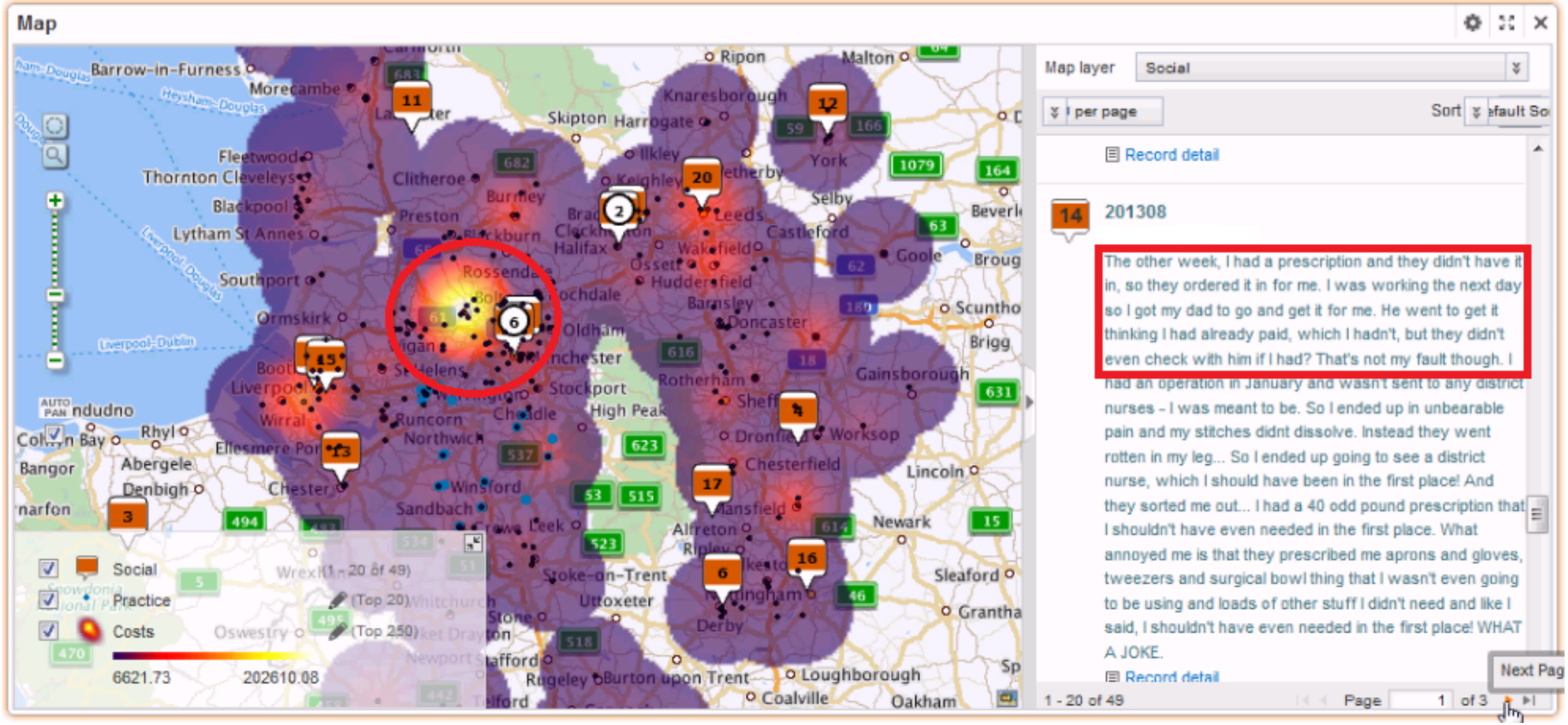
Ask questions - Information Discovery



Copyright © 2014 Oracle and/or its affiliates. All rights reserved. | Copyright 2011 Oracle and it's affiliates. All rights reserved.

Business value

Identify fraud or error



Copyright © 2014 Oracle and/or its affiliates. All rights reserved. | Copyright 2011 Oracle and it's affiliates. All rights reserved.

Prescription fraud costs thousands

8:14am Saturday 27th October 2012 in News

HUNDREDS of people have fraudulently claimed for free prescriptions in Bolton, costing the NHS thousands of pounds.

Now an anti-fraud specialist is working with pharmacies across the town to crack down on fraudulent claims and recover the money.

So far, prescriptions in 16 pharmacies in Bolton have been checked, with £1,602 being recovered.

In 2011, £771 was recovered and so far this year £831 has been collected.

Scans of prescriptions are sent to the Department for work and Pensions who look for certificates for medical exemption, NHS Tax Credit exemption, prescription pre-payments, maternity exemption and the NHS low income scheme.

Tweet 1
Like 0
+1 0
Email
Print this page
Comment(3)

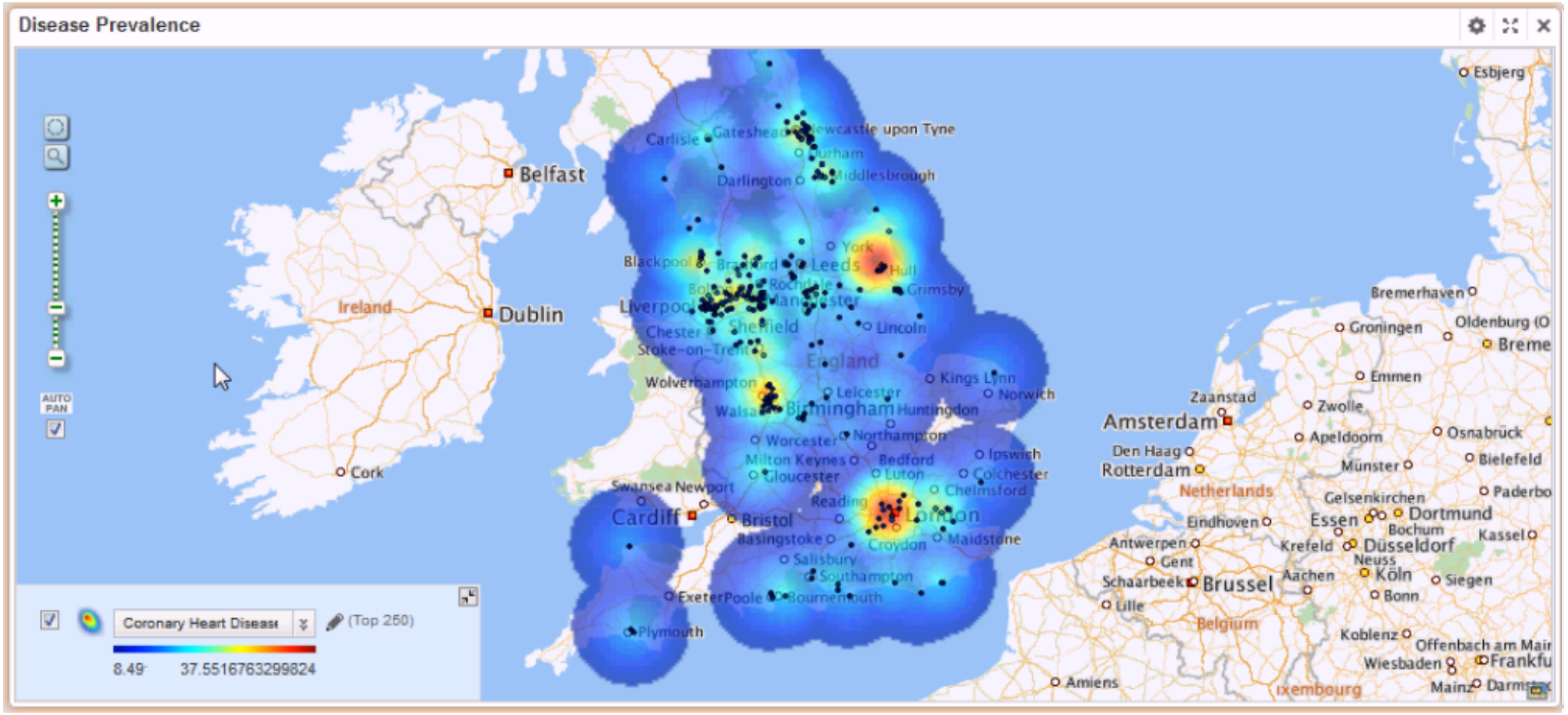
Bolton
2.9°c
9% chance of rain
weather forecast »

FEATURED JOBS
Sales Bury
Clerical Bolton
Clerical Bury
Campervan builder Bolton
Engineer Barrow-in-Furness
Technician - Sports & Public Services Bolton
See 3,461 jobs in and around Bolton

MOST READ
1. UPDATE: Man dies in Manchester Road house fire
2. Revealed: How chip shop scuppered grand plans for £440,000 glass entrance at Bolton Market

Business value

Drive better health policies



Copyright © 2014 Oracle and/or its affiliates. All rights reserved. | Copyright 2011 Oracle and it's affiliates. All rights reserved.

Health Information Exchange

Joel Haspel

ORACLE

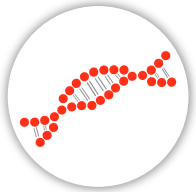
Copyright © 2014 Oracle and/or its affiliates. All rights reserved. |

Oracle Healthcare Portfolio

Enterprise Healthcare Analytics

- Clinical Performance
- Population Health
- Financial Performance
- Safety & Comparative Effectiveness

Translational Medicine



- Biomarker Discovery
- Patient Cohort ID & Selection
- Statistical & Scientific Analysis
- Molecular Basis of Disease

Health Sciences Network

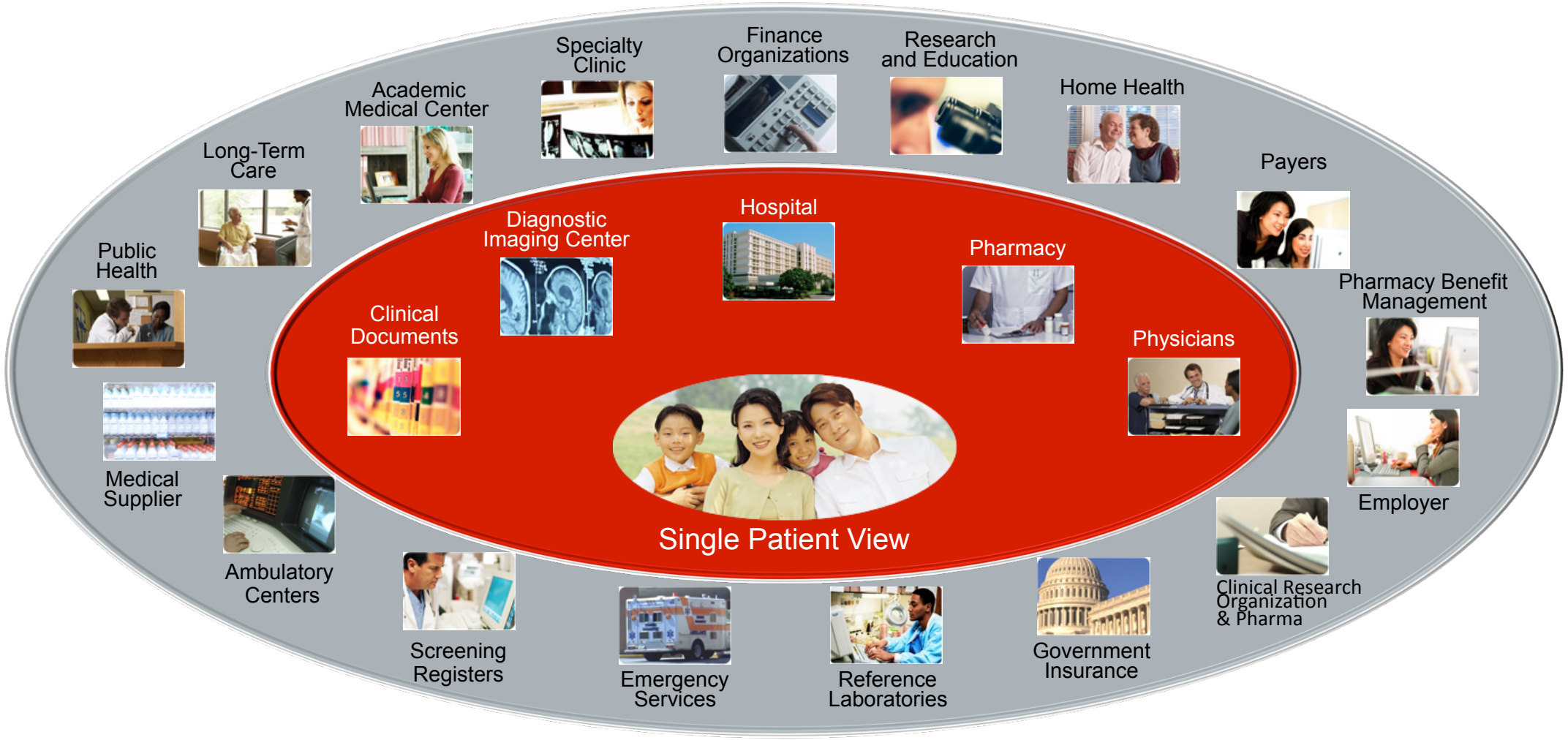
- Collaborative R&D
- Clinical Trial Patient Recruitment

Health Information Exchange

- Patient-Centered Care Coordination
- Patient and Provider Identification

Copyright © 2014 Oracle and/or its affiliates. All rights reserved. |

Health Information Exchange



Copyright © 2014 Oracle and/or its affiliates. All rights reserved. |

It is....

- **Electronic Health Record** (**EHR**) - An electronic record of health-related information on an individual that conforms to nationally recognized interoperability standards and that can be created, managed, and consulted by authorized clinicians and staff across more than one health care organization
- **Personal Health Record** (**PHR**) - An electronic record of health-related information on an individual that conforms to nationally recognized interoperability standards and that can be drawn from multiple sources while being managed, shared, and controlled by the individual

It is not…

- **Electronic Medical Record** (**EMR**) - An electronic record of health-related information on an individual that can be created, gathered, managed, and consulted by authorized clinicians and staff within one health care organization.
- **Hospital information system (HIS)** is an integrated information system designed to manage all the aspects of a hospital operation, such as medical, administrative, financial, legal and the corresponding service processing

Copyright © 2014 Oracle and/or its affiliates. All rights reserved. | Oracle Confidential – Internal/Restricted/Highly Restricted

Cancer Care-Coordination Scenario

Copyright © 2014 Oracle and/or its affiliates. All rights reserved. |

Cancer Care-Coordination Scenario

Care Documents

Copyright © 2014 Oracle and/or its affiliates. All rights reserved. |

What Does Health Information Exchange Deliver?

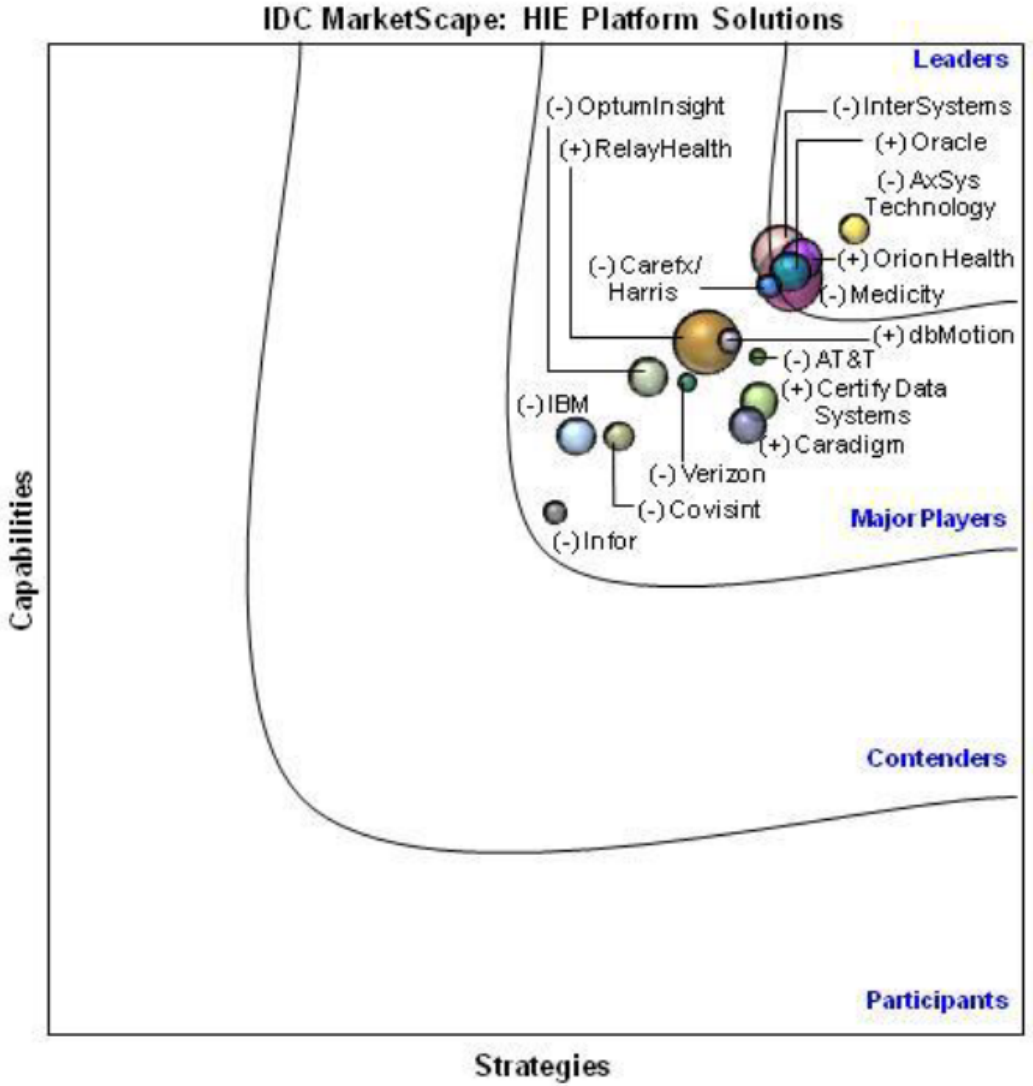
- Collaboration: Share healthcare information between caregivers, across networks
- Using standards such as IHE (Integrating the Healthcare Enterprise)
- To provide patient-centric electronic health records
- Reduce healthcare costs – avoid duplication of tests and treatment and prevent avoidable deaths

- Grow into the robust infrastructure required for healthcare analytics and research analytics
- Could span many levels:
  - Public National
  - State/Province
  - Community
  - Local Provider Service Area

Copyright © 2014 Oracle and/or its affiliates. All rights reserved. |

IDC 2012 MarketScape Vendor Assessment

U.S. Health Information Exchange Platform Solutions



- Oracle HIE is positioned in the Leaders Category
- Key differentiator is that Oracle can provide a comprehensive HIE technology stack from hardware and storage infrastructure to databases and middleware to applications
- Customers appreciate that Oracle provides a transparent development environment (i.e., not a "black box") and the tools to allow them self-develop additional functionality
- HIOs seeking a strong data model, analytics, and predictive analytics capabilities should consider Oracle Health Information Exchange solution

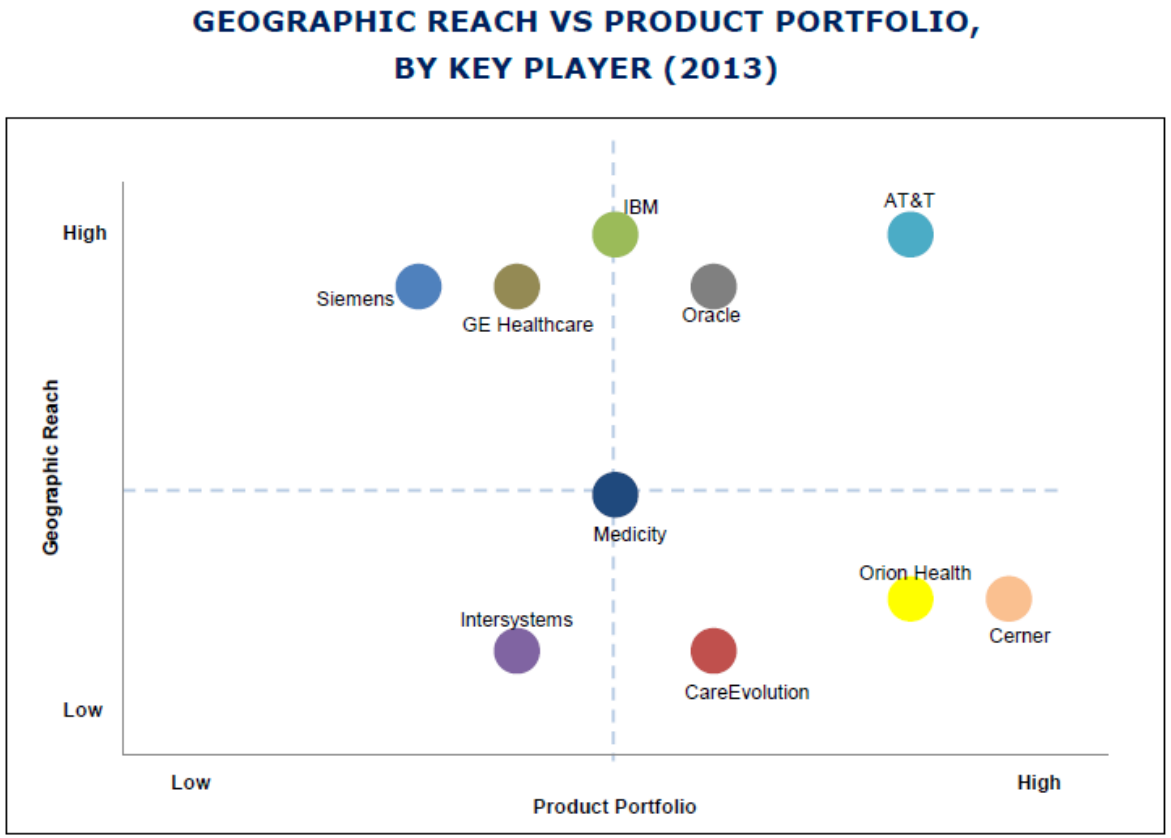
Source: IDC Health Insights, 2012: U.S. Health Information Exchange Platform Solutions 2012 Vendor Assessment IDC MarketScape vendor analysis model is designed to provide an overview of the competitive fitness of ICT suppliers in a given market. The research methodology utilizes a rigorous scoring methodology based on both qualitative and quantitative criteria that results in a single graphical illustration of each vendor's position within a given market. The Capabilities score measures vendor product, go-to-market and business execution in the short-term. The Strategy score measures alignment of vendor strategies with customer requirements in a 3-5-year timeframe. Vendor market share is represented by the size of the circles.

ORACLE

Copyright © 2014 Oracle and/or its affiliates. All rights reserved. |

Markets and Markets

HIE Market - Global Trends and Forecast 2018



Source: Markets and Markets, 2014: HEALTHCARE INFORMATION EXCHANGE (HIE) MARKET - Global Trends & Forecast to 2018

- Oracle is one of the very few vendors that offers comprehensive solution that ranges from hardware and storage, to database and middleware, and applications for best of class HIE implementations
- Oracle HSGBU added Master Person Index to its healthcare product offerings which is now a leader in Master Person Index (EMPI) domain
- Oracle HIE implementations can scale from small departmental to large to very large country-wide implementations
- Oracle HIE offers an extensive range of functionality and supports multiple standards. The company believes in providing customer friendly environment and allows the flexibility for additional functionality.

Copyright © 2014 Oracle and/or its affiliates. All rights reserved. |

Oracle Health Information Exchange
Key Components

- **Oracle Health Sciences Information Manager (HIM) and Gateway (HIG)**

HIM is a performance optimized solution for standards-based health record locator services and governance. HIG enables secure cross-community access to healthcare data.

- **Oracle Healthcare Master Person Index (OHMPI)**

OHMPI provides cross-reference services and a unified view of patients, providers or other healthcare entity within a healthcare organization or across HIE networks.

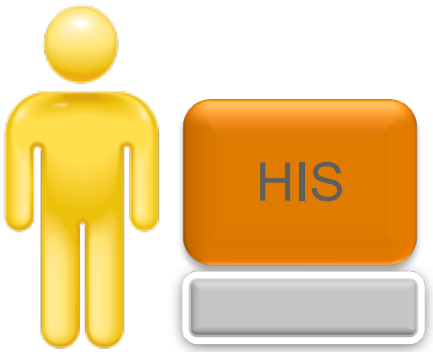
- **Oracle Healthcare Data Repository (HDR)**

HDR provides clinical data and document repository functions including the ability to produce, store, and consume standards-compliant healthcare documents.

Copyright © 2014 Oracle and/or its affiliates. All rights reserved. |

Oracle Health Information Exchange

Standards-based comprehensive solution



HIE Services

Patient Identity

Provider Identity

NwHIN Gateway / eHealth Exchange

Direct Messaging

Document Repository

Clinical Data Repository

HIE Applications

Oracle Healthcare Master Person Index

Health Sciences Information Manager

Oracle Healthcare Data Repository

Health Sciences Information Gateway

HIE Services

Terminology Services

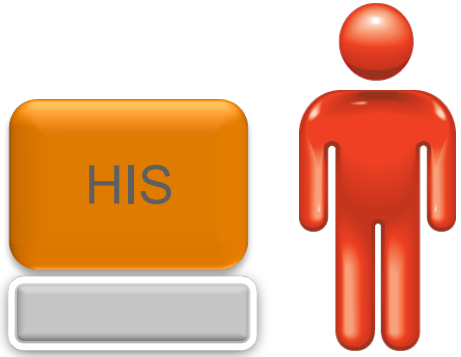
Transaction Auditing

Access Policy Engine

Document Registry

CCD Generation & Consumption

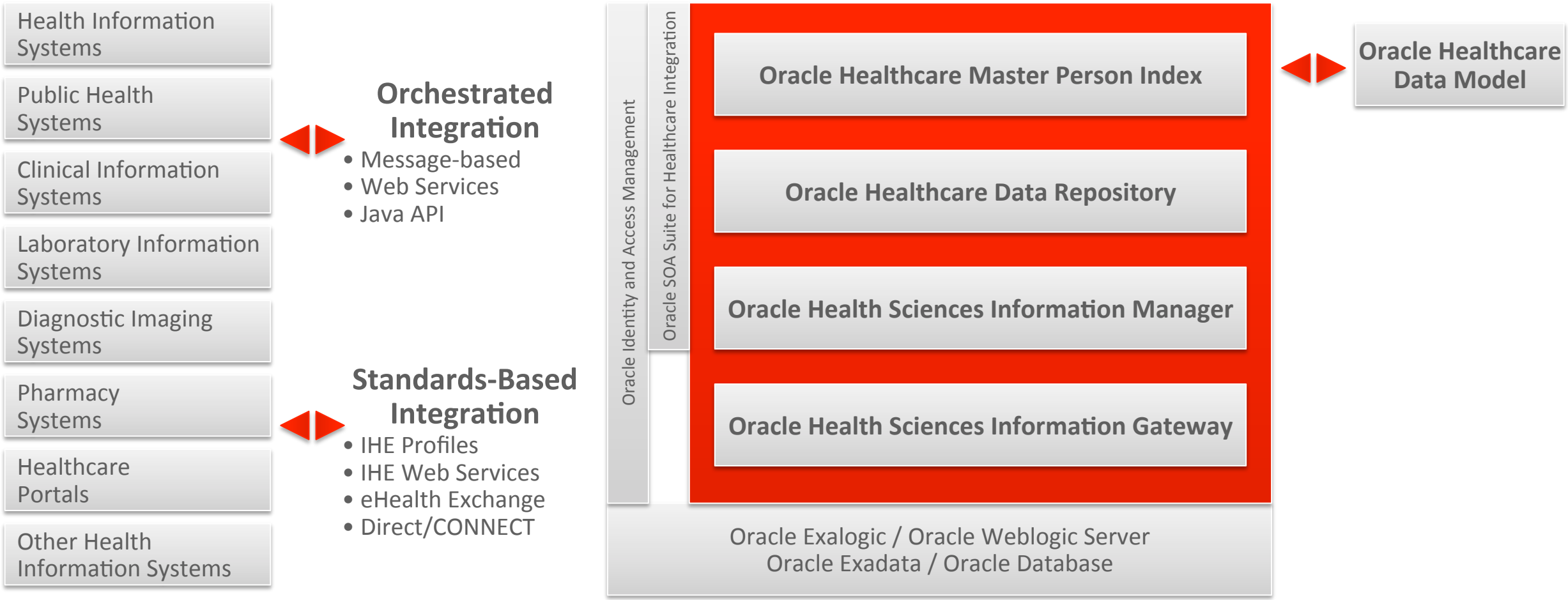
Integration Engine



ORACLE

Copyright © 2014 Oracle and/or its affiliates. All rights reserved. |

Oracle Health Information Exchange

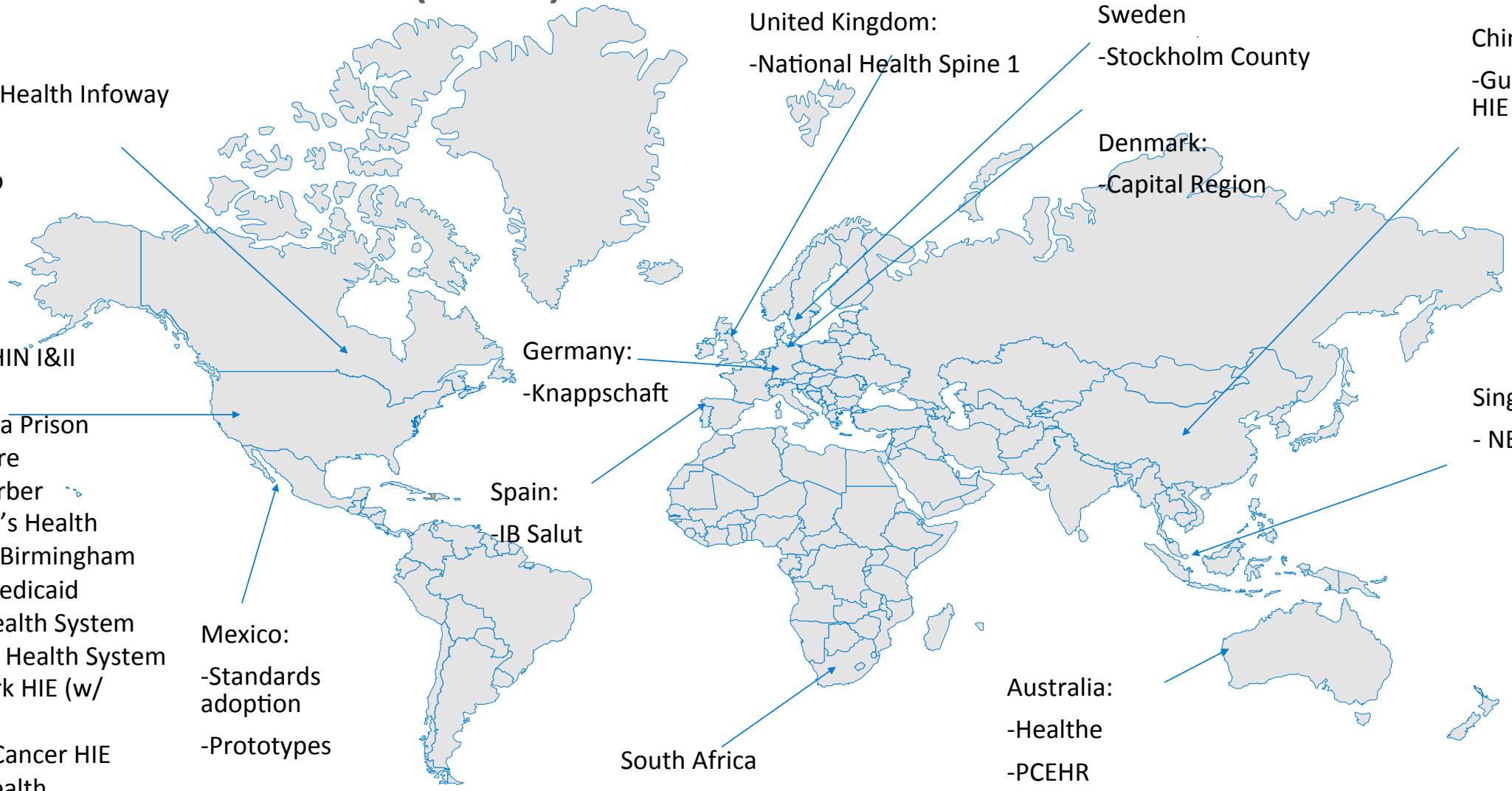


Copyright © 2014 Oracle and/or its affiliates. All rights reserved. |

Case Studies

Copyright © 2014 Oracle and/or its affiliates. All rights reserved. |

Oracle Global HIE (EHR) Initiatives



Canada:
-Canada Health Infoway
-Quebec
--Ontario

USA:
-ONC: NHIN I&II
-MHS
-California Prison Healthcare
-Dana Farber
-Children's Health System - Birmingham
-Texas Medicaid
-Inova Health System
-Ochsner Health System
-Highmark HIE (w/ Verizon
-Moffitt Cancer HIE
-Relay Health

Mexico:
-Standards adoption
-Prototypes

United Kingdom:
-National Health Spine 1

Germany:
-Knappschaft

Spain:
-IB Salut

South Africa
-Department of Health

Sweden
-Stockholm County

Denmark:
-Capital Region

China:
-Guangzhou region HIE

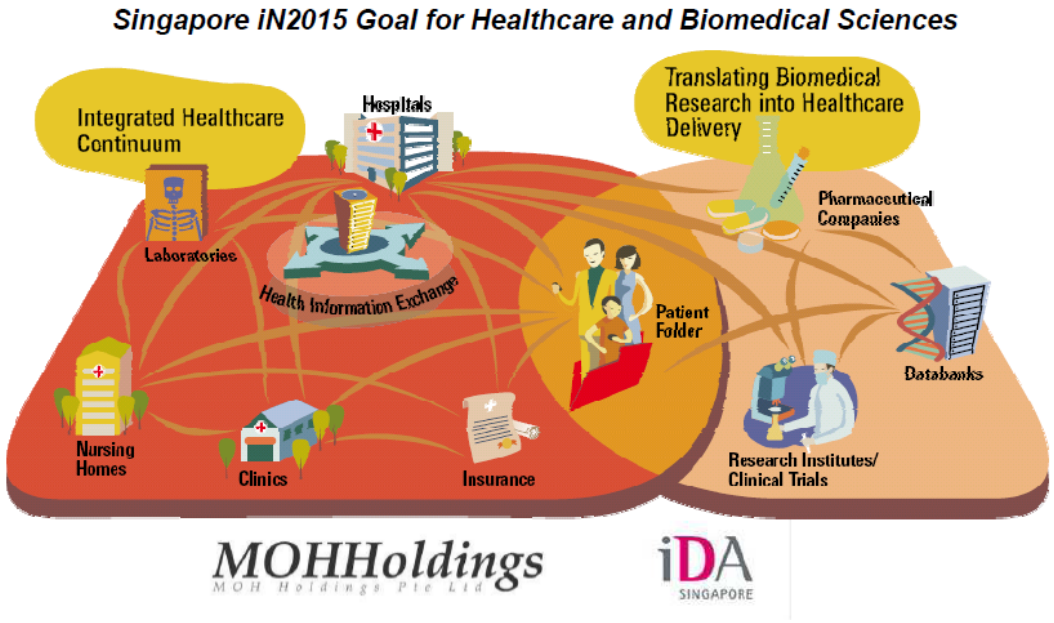
Singapore:
- NEHR

Australia:
-Healthe
-PCEHR

© 2012 Oracle Corporation
nd/or its affiliates. All rights reserved. |

Singapore One Singaporean one Medical Record

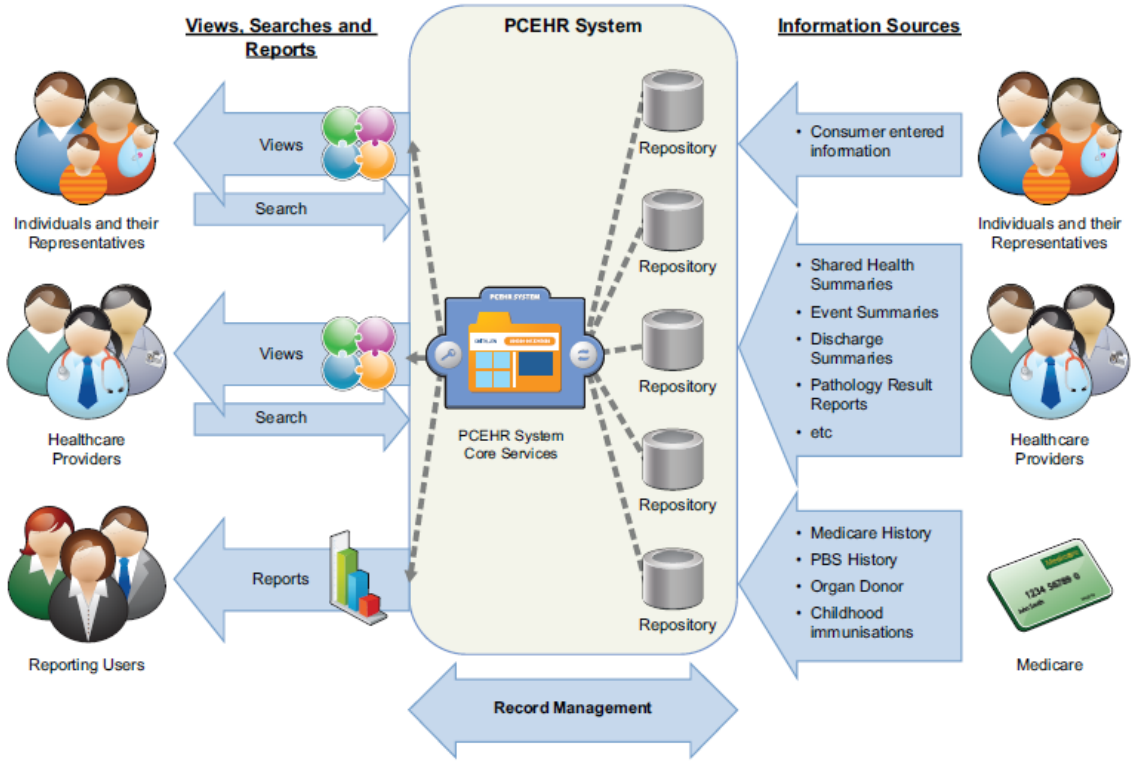
- 5.2 Million Citizens, 4 official languages
- 9% of resident population aged 65% above project 20% by 2030
- Vision for patients to move **seamlessly** across the healthcare system receiving **patient centric** care at the most **appropriate setting**
- Phase 1 implemented in 2011 to provide **longitudinal care summary shared** across **all providers** of care
- Delivered in 11 months



Copyright © 2014 Oracle and/or its affiliates. All rights reserved. | Oracle Confidential – Internal/Restricted/Highly Restricted

Australia Personally Controlled Medical Record

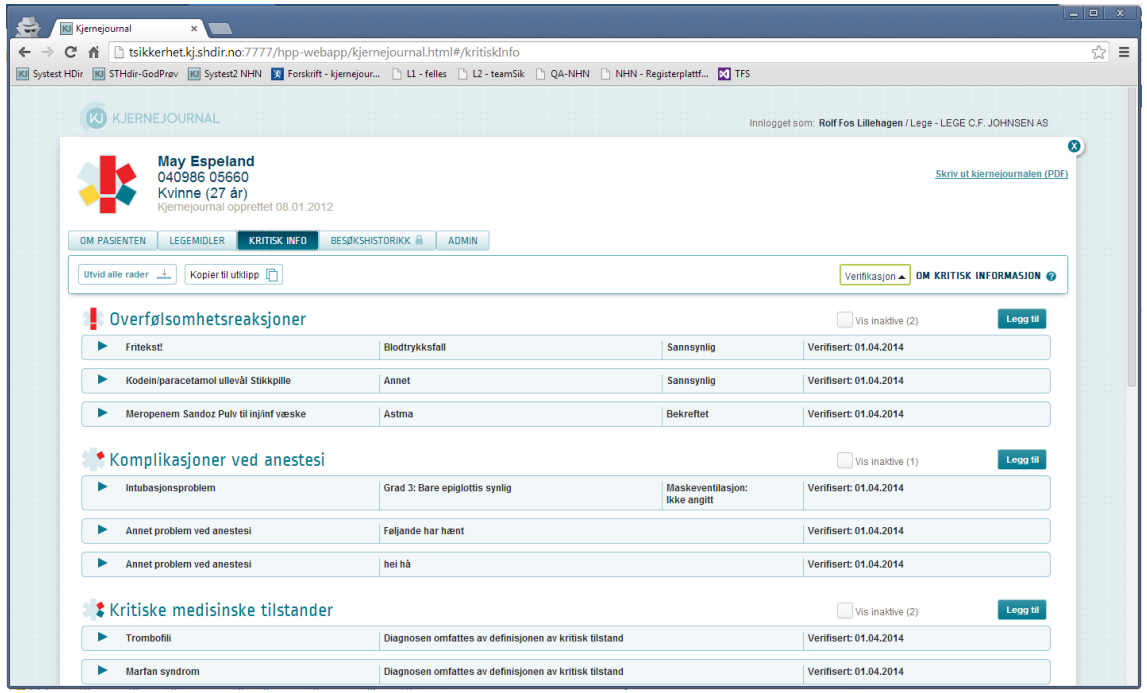
- 23 million citizens
- Up to **1 in 6** (or 18%) **medical errors** are due to inadequate patient information
- Nearly **1 in 3** (30%) unplanned hospital admissions in those over **75 years** are associated with **medication mistakes**
- Solutions is a **Payer, Provider** and **Citizen** Healthcare record, over 1 million citizens now have their own Personal Record
- **Opt-in system** with a focus on **security** and **consent** management



Copyright © 2014 Oracle and/or its affiliates. All rights reserved. | Oracle Confidential – Internal/Restricted/Highly Restricted

Norway National Electronic Health Record

- 5 million citizens
- Clinical Portal that allow the patient to **hide** or **remove** any part of the **encounter** e.g. delete the specified prescribe drug from my encounter
- Security framework that allows the **citizen** to **control** the **security** of their **own clinical data**
- Phase 1 implemented 2013



Copyright © 2014 Oracle and/or its affiliates. All rights reserved. | Oracle Confidential – Internal/Restricted/Highly Restricted

Brazil National Healthcare Card

- 201 Million Citizens
- To promote **correct identification** and **individualization** of **health information**
- To provide demographic information to support **decision making** of **healthcare policies**
- To provide electronic **access** of **health information** to **citizens**
- To promote **interoperability** between **health IT** systems with the national SUS **patient database** (CADSUS).

Copyright © 2014 Oracle and/or its affiliates. All rights reserved. | Oracle Confidential – Internal/Restricted/Highly Restricted

Partner Opportunities to Differentiate

- Implementation: Configuration and Integration
- Asset Development: Portal
- Hosting: Integrated Care Across Primary, Secondary and Social
- BPO
- Business Consulting

Copyright © 2014 Oracle and/or its affiliates. All rights reserved. | Oracle Confidential – Internal/Restricted/Highly Restricted

Why Oracle Health Sciences?

- BEST-OF-BREED TECHNOLOGY
- INDUSTRIAL STRENGTH CAPABILITY
- UNMATCHED DOMAIN EXPERTISE
- DEEP & BROAD DATA MANAGEMENT
- INNOVATION & TRANSFORMATION
- COMMITTED INVESTMENT IN LIFE SCIENCES & HEALTHCARE

ORACLE

Copyright © 2014 Oracle and/or its affiliates. All rights reserved. |

FROM PIPELINE TO PATIENT
OPTIMIZING AND **TRANSFORMING**
LIFE SCIENCES AND HEALTHCARE

Hardware and Software

ORACLE

Engineered to Work Together

ORACLE®