IBM Watson Health

IBM

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Global trends are forcing the need for change

Aging Population

66%

2 million aged over 65 in UK will lack informal care from adult offspring by 2030…a 66% increase from 1.2 million in 2012

Increasing Costs

$7 trillion+

The cost for health and social programs worldwide, and it is rising

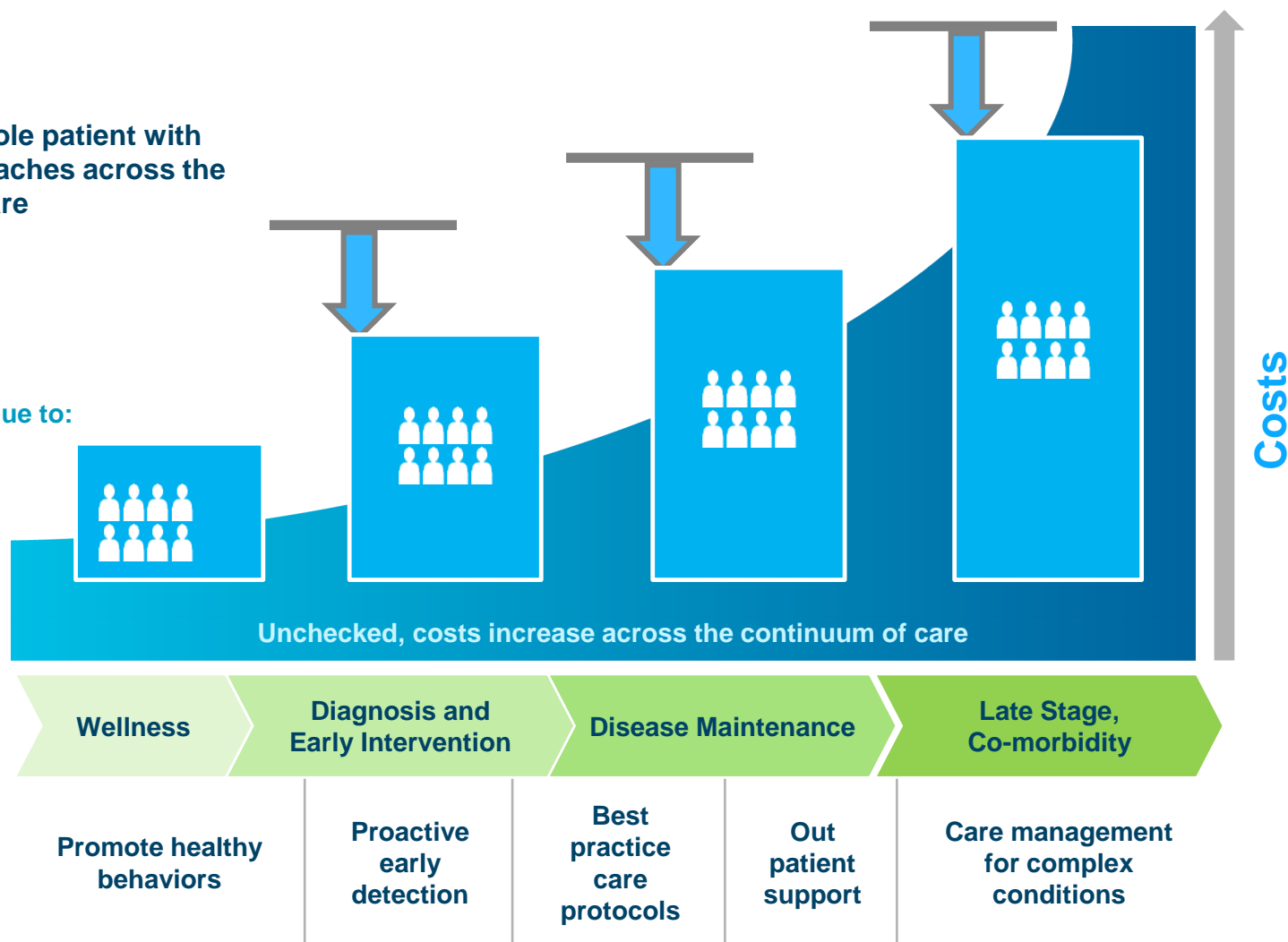### Economic Productivity

1:2.3

Potential return on investment for helping to keep people at work - occupational risk prevention, return-to-work programs

Integrated care approaches improve health, reduce costs

Address the whole patient with proactive approaches across the continuum of care

Costs increase due to:
- **Aging populations**
- **Chronic disease**
- **Complex conditions**

Unchecked, costs increase across the continuum of care

Costs

Wellness	Diagnosis and Early Intervention	Disease Maintenance	Late Stage, Co-morbidity

Proactive, evidence-based approaches

Promote healthy behaviors	Proactive early detection	Best practice care protocols	Out patient support	Care management for complex conditions

Personal data is exploding

Impact on a person's health status

Exogenous Factors

60%

Environment & Social
Context, Behavior

Genomic Factors

30%

Clinical Factors

10%

In their lifetime, the data an average person will generate

1,100 TB

1,100 TB

Volume, Variety, Velocity, Veracity

Educational records, Employment Status, Social Security Accounts, Mental Health Records, Caseworker Files, Fitbits, Home Monitoring Systems, and more…
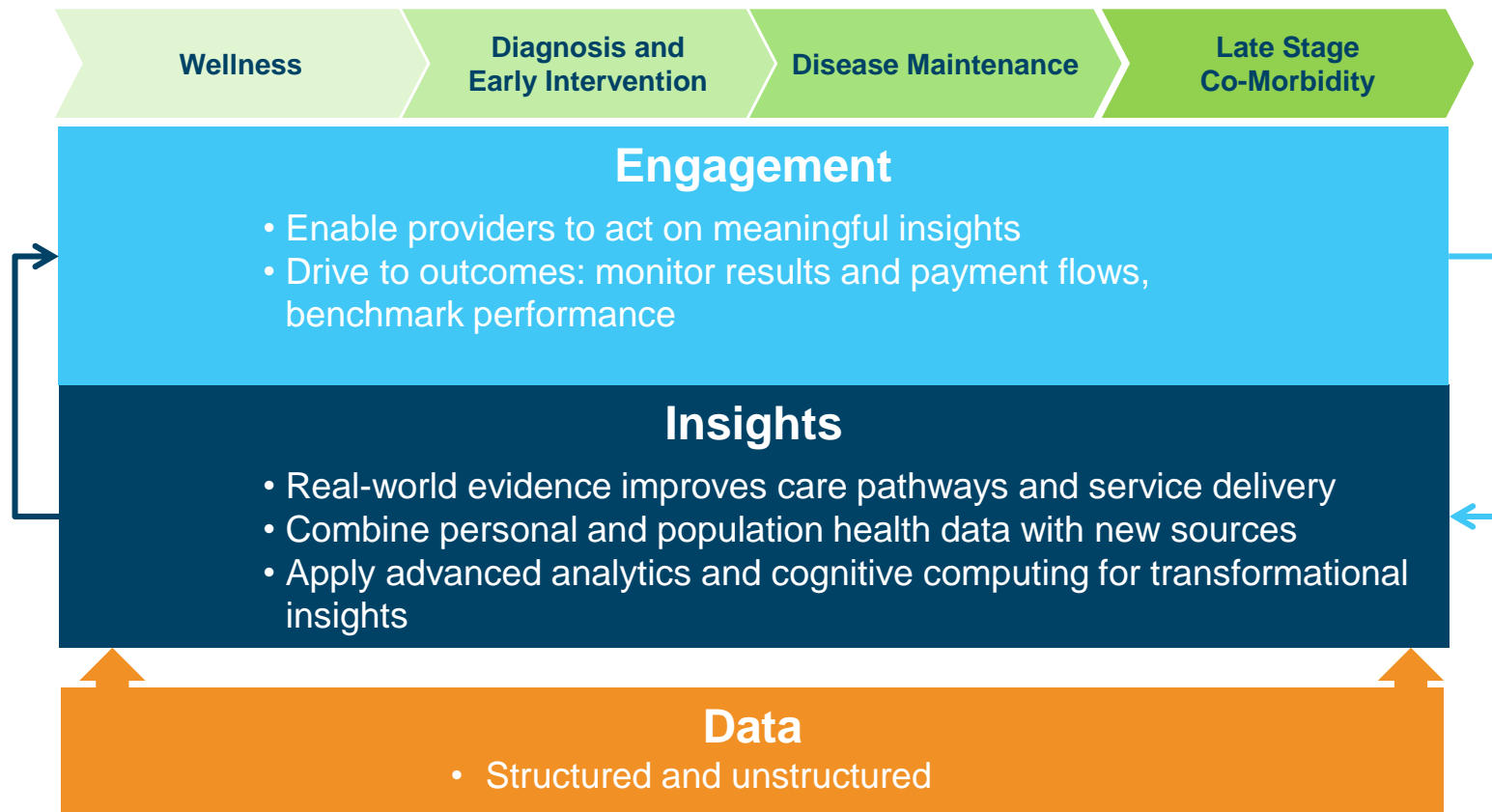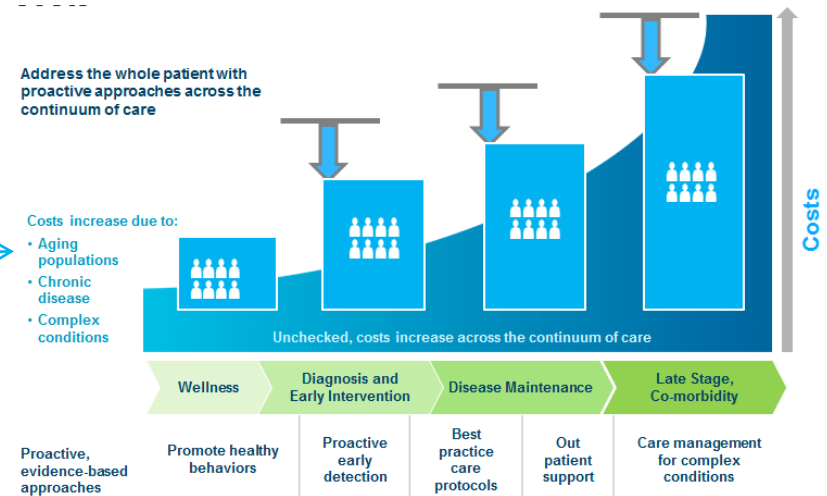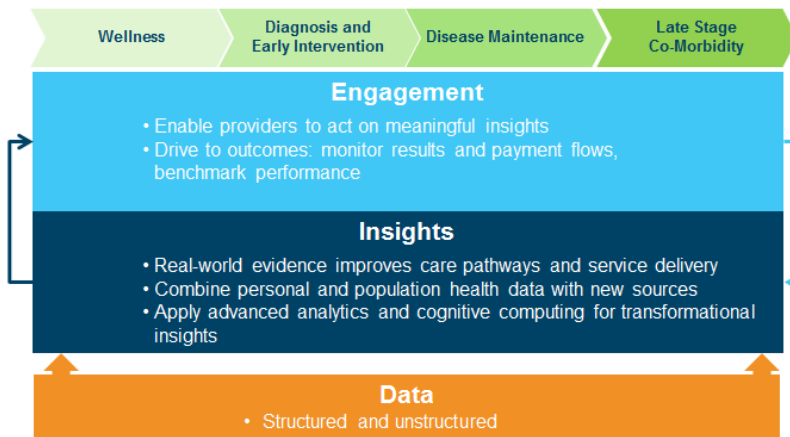
6 TB

Volume

0.4 TB

Variety

Electronic Medical / Health Records, Physician Management Systems, Claims Systems and more…

Integrated approaches need new insights and engagement

Wellness	Diagnosis and Early Intervention	Disease Maintenance	Late Stage Co-Morbidity

Engagement

- Enable providers to act on meaningful insights
- Drive to outcomes: monitor results and payment flows, benchmark performance

Insights

- Real-world evidence improves care pathways and service delivery
- Combine personal and population health data with new sources
- Apply advanced analytics and cognitive computing for transformational insights

Data

- Structured and unstructured

Integrated approaches

Better engagement drives better outcome at lower costs

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More outcome management drives more monitoring drives more data and insight

Introducing IBM Watson Health

| Acquisitions | Partnerships | IBM organic innovation |

IBM Cúram
- Smarter Care
- Social Programs

IBM Research Assets

IBM Watson
- Healthcare
- Government

Data and solutions
- Massive big data management
- Solutions for population health and patient engagement

Insights
- Population health
- Patient engagement

Insights and solutions
- Care management
- Social Program Management
- Cognitive computing

Addressing the continuum of needs for better outcomes

IBM Watson Health

| Wellness / Prevention | Diagnosis / Risk Assessment and Early Intervention | Disease Maintenance / Remediation | Late Stage Co-morbidity / Continuing Education & Care |

Engagement Solutions

IBM IBM Care Management

PHYTEL Population Health Management &Patient Engagement

IBM Cúram Social Program Management

Insights as a Service

Personal Wellness: Apple HealthKit, ResearchKit

Medtronic Diabetes Management

Johnson & Johnson Intelligent Coaching (J & J)

IBM IBM Watson, IBM Research

Data Secure, cloud-based big data analytics platform

explorys

Introducing Explorys

Who: Explorys is a 145-person, privately held company founded in 2009 in partnership with Cleveland Clinic

What: Explorys is a healthcare intelligence cloud company formed in conjunction with Cleveland Clinic. They provide cloud-based big data infrastructure and high-speed processing for clinical integration.

When: Announced April 13, 2015 subject to customary closing conditions.

Where: Based in Cleveland, Ohio. Used by 26 integrated healthcare systems and clinically integrated networks with 360 hospitals spanning 50 million patients nationwide.

Why:

- Explorys masters the management and flow of big data to transform healthcare with one of the largest healthcare databases in the world

- Explorys addresses the national imperative to leverage Big Data in healthcare for the improvement of medicine and delivery of care

- Healthcare data can span across a disparate ecosystem of employed and affiliate providers, payers and plans, care settings, and electronic medical systems; Explorys ties that data together into unique valued action

- Rich product with proven results with industry leading Health and Life Sciences organizations including Cleveland Clinic

Explorys Provides A Powerful Learning Network

Network-wide Benchmarks
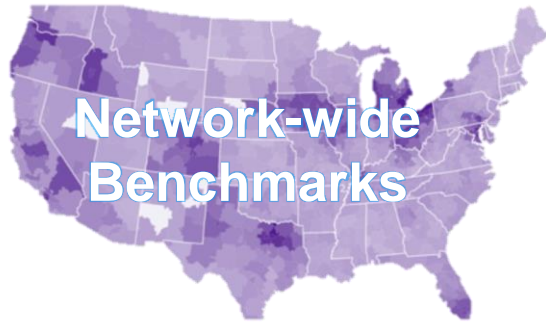
UNIQUE LIVES	U.S. POPULATION	HEALTHCARE NETWORKS
50 MILLION	15%	26
PROVIDERS	HOSPITALS	LONGITUDINAL DATA POINTS
317 THOUSAND	360	315 BILLION
LIVE CONNECTORS	COMBINED CUSTOMER NPR	PRE-BUILT ANALYTICS
2,000+	$69 BILLION	1,000+

One of the largest clinical datasets in the World
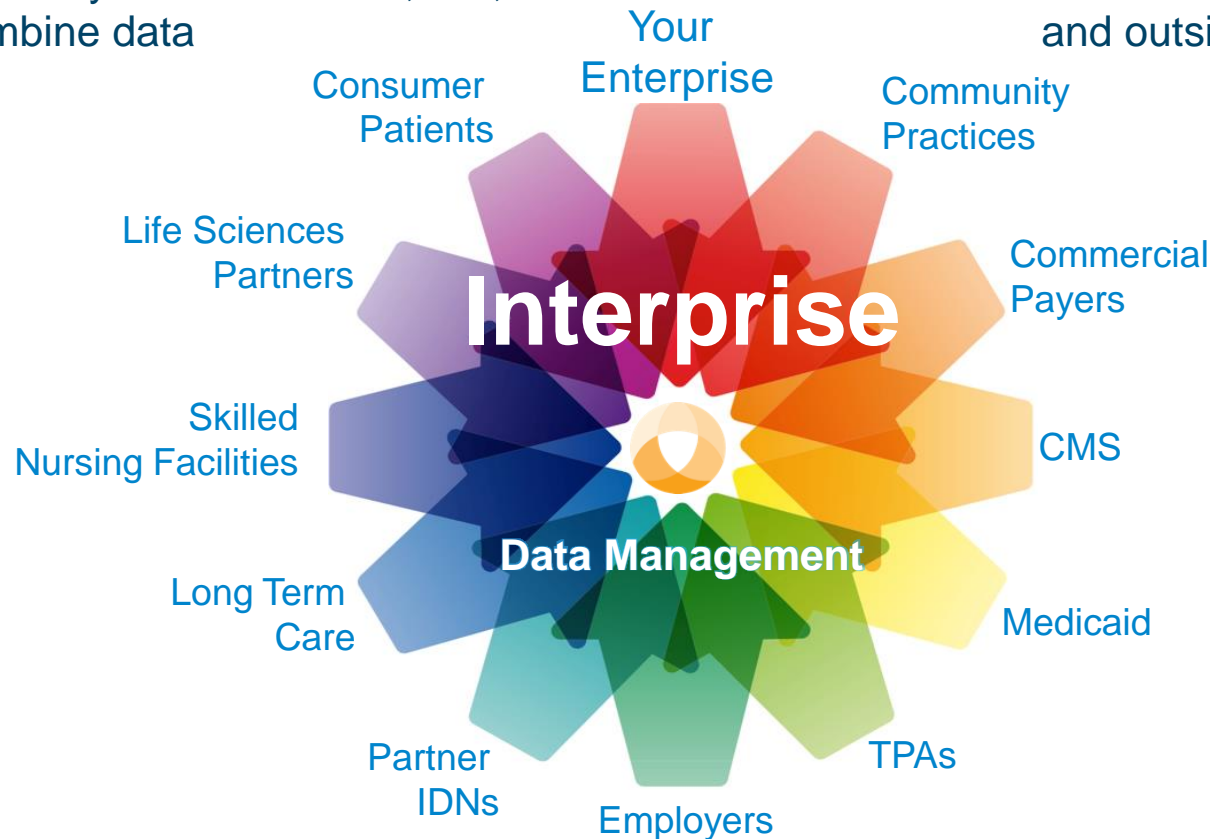
Serving expansive network of US hospitals, providers

- Prominent healthcare partners account for over $69B in care
- Data set with over 315 billion clinical, financial, and operational data elements
- Spanning 50 million unique patients, 360 hospitals, and over 317,000 providers
- Used by 26 integrated healthcare systems and clinically integrated networks to identify patterns in diseases, treatments, and outcomes

Combining data from hundreds of sources across the "Interprise"

The Explorys platform enables healthcare systems to collect, link, and combine data

Representing convergence and standardization of big data inside and outside the organization

Your Enterprise

Community Practices

Consumer Patients

Commercial Payers

Life Sciences Partners

Interprise

Skilled Nursing Facilities

CMS

Data Management

Long Term Care

Medicaid

Partner IDNs

TPAs

Employers

IBM signed definitive agreement to acquire Phytel

Who: Phytel is a 150-person, privately held company founded in 1996, used by 130 leading US healthcare organizations

What: Phytel develops and sells software as a service designed to automate provider-led Population Health Management, with an emphasis on patient engagement and population analytics, designed to support provider care management workflows.

When: Announced April 13, 2015, this transaction is expected to close in 2Q, subject to regulatory review and customary closing conditions.

Where: Based in Dallas, TX.

Why: *improves long-term health outcomes by helping providers and care teams **coordinate care** and **engage patients** to positively influence population health*

- Leading healthcare expertise and offerings acknowledged by KLAS, **Gartner** and IDC
- Supports business and clinical requirements of healthcare providers: improving effectiveness of care quality and driving ROI regardless of reimbursement model
- Turns care insights into action with proactive, **personalized** patient engagement
- Leverages healthcare providers' existing investments in PMS, EHR, **HIS** systems
- Delivered through Software-as-a-Service model, aligning to providers' financial needs
- Extends IBM leadership with new population health management expertise and innovation

Phytel improves long-term health outcomes

Helping care providers
coordinate care *and* ***engage patients***
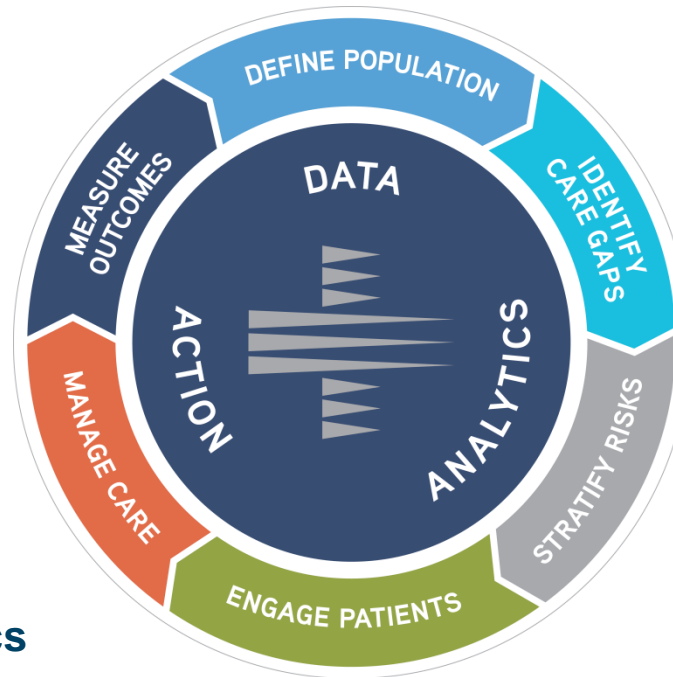
Leverage **data** from multiple sources

Apply advanced **analytics** for new insights

Turn insights into **action**

Know patient populations

Anticipate patient risks and allocate resources effectively

Engage populations - one patient at a time - **proactive, precise, and personalized interactions**

The anticipated acquisition* of Phytel expands IBM's vision and strategy

Capabilities Now

Holistic view across all factors of health factors: (clinical, psychological, social)

Multi-disciplinary care management for high-cost, high-need populations

Addressing the needs of public / government health

Enterprise solutions evolving to cloud, SaaS and mobile

Capabilities with Phytel

Enhanced insights to patient's clinical status from healthcare systems (physician management systems, electronic medical/health records)

Provider-led intervention and engagement of patient populations, from preventative wellness through disease management

Addressing the needs of health care provider organizations

Integrated solution delivered via Software-as-a-Service

*Subject to the satisfaction of customary closing conditions and applicable regulatory reviews

Elder care

IBM Confidential

Introducing Mary Reynolds

Retired primary school teacher

One daughter who works full-time

Other family support available intermittently, but they are outside the city

Lives on her own in a single bedroom apartment in the city

Suffers from asthma and diabetes

Mary's health and overall wellness are declining

4 emergency room visits in past 3 months

Reliant on public transportation

Increasingly Isolated & depressed

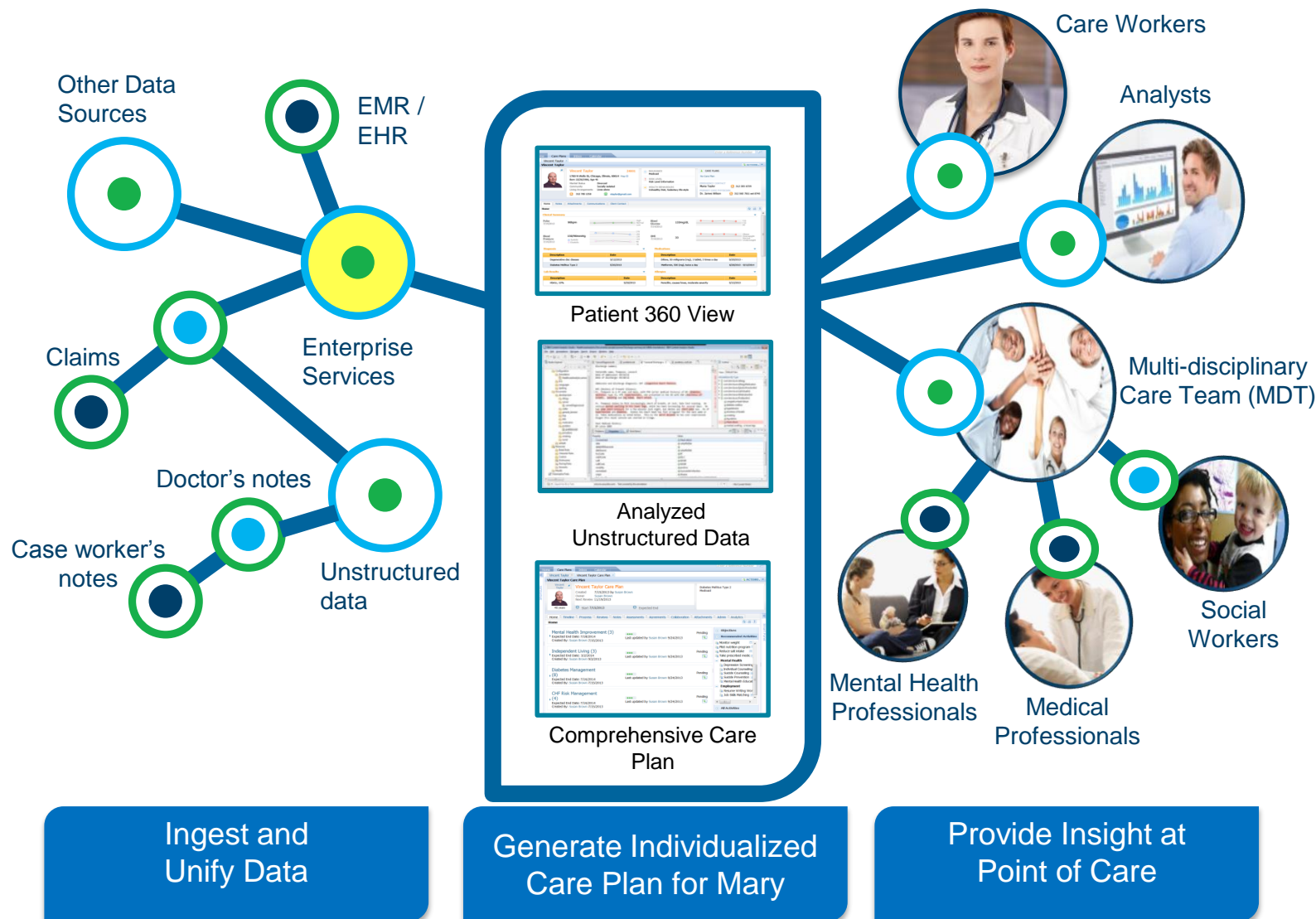Growing frail and her independence is in jeopardy

Reluctant to ask for assistance

IBM Care Management

- First packaged business solution in the Smarter Care portfolio

- Enables care management across multi-disciplinary teams & beyond a clinical hospital plan

- Key cross brand capabilities are included in the product to support the target segment

- Allows you to grow the Smarter Care footprint without having to acquire new products
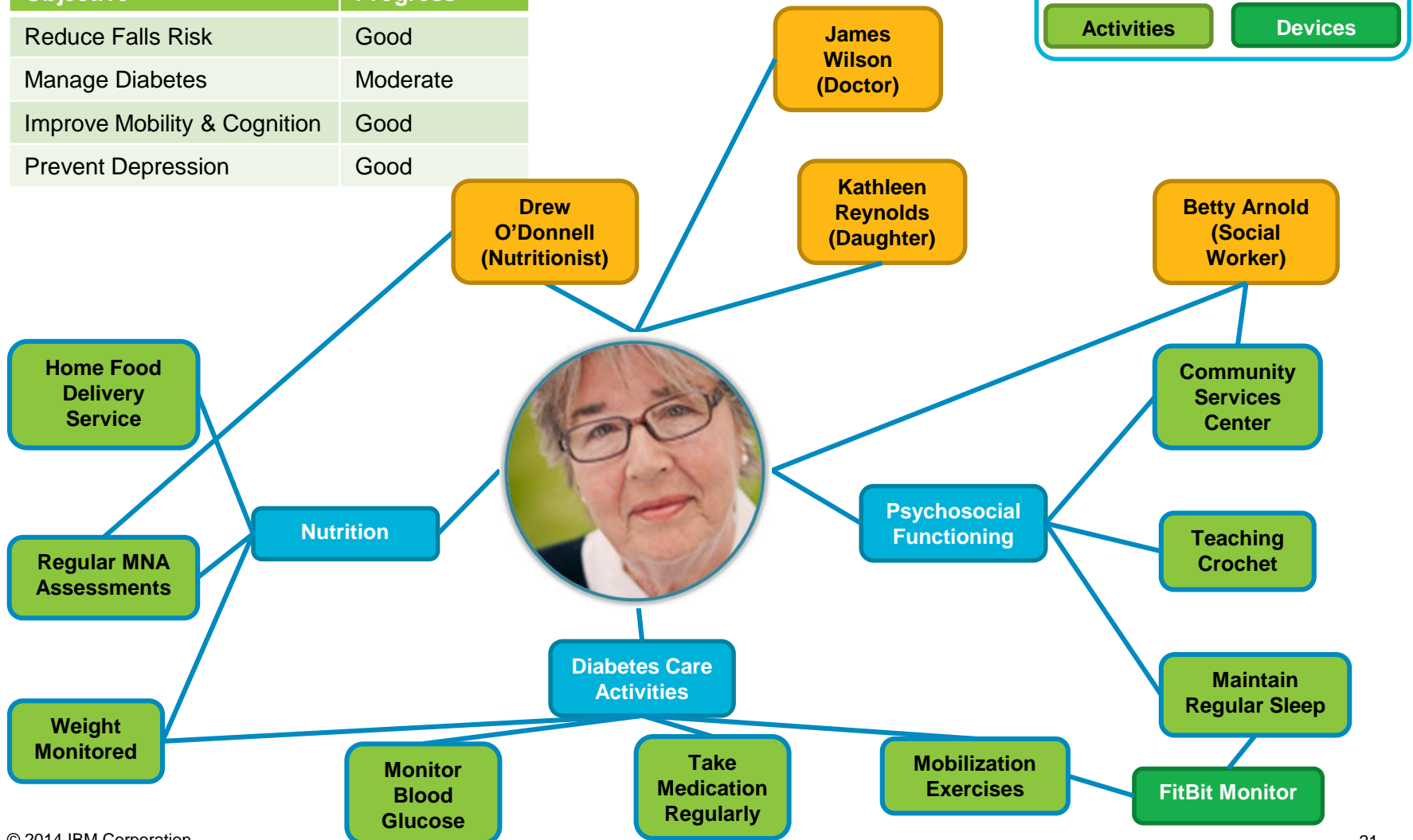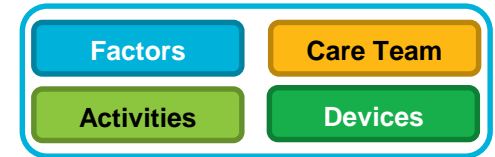
IBM Care Management – a total view

Care Workers

Analysts

Other Data Sources

EMR / EHR

Enterprise Services

Claims

Doctor's notes

Case worker's notes

Unstructured data

Patient 360 View

Analyzed Unstructured Data

Comprehensive Care Plan

Multi-disciplinary Care Team (MDT)

Social Workers

Mental Health Professionals

Medical Professionals

Ingest and Unify Data

Generate Individualized Care Plan for Mary

Provide Insight at Point of Care

Let's go back to visit Mary….with IBM Care Management

Goal: Reduce Frailty Risk from 0.7 to .024	
Objective	**Progress**
Reduce Falls Risk	Good
Manage Diabetes	Moderate
Improve Mobility & Cognition	Good
Prevent Depression	Good

Factors **Care Team** **Activities** **Devices**

James Wilson (Doctor)

Kathleen Reynolds (Daughter)

Betty Arnold (Social Worker)

Drew O'Donnell (Nutritionist)

Home Food Delivery Service

Community Services Center

Nutrition

Psychosocial Functioning

Teaching Crochet

Regular MNA Assessments

Diabetes Care Activities

Maintain Regular Sleep

Weight Monitored

Monitor Blood Glucose

Take Medication Regularly

Mobilization Exercises

FitBit Monitor

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Catalan Institute of Health reduces cost while improving patient health and satisfaction

"We understand the importance of the joint action between professionals across different service levels and its positive effects on the health outcomes of the patients being cared for, in the quality of the care provided and in the use of healthcare and social resources."

- Jaume Benavent,
Deputy Director of Health Affaires,
ICS

Background: With the rise in chronic disease in an ageing population consuming more and more of healthcare resources, **Catalan Institute of Health (ICS), a major health provider in Catalonia, Spain** is developing a new target program for Complex Chronic Disease Management with the objectives to improve adherence in care programs, improve patient quality of life and to improve satisfaction with the healthcare system and reduce costs.

Issues: Catalan needed a system that can provide a holistic view of the patient, creating an individualized care plan to support care delivery in home settings, reassessments, referrals and collaboration across key resources.

Catalan Institute of Health institutes coordinated care planning and delivery

10% – 15%

cost reduction for caring for chronically ill patients

8%

reduction in outpatient visits

10% – 12%

less readmissions to hospitals, acute care wards and emergency departments

Improved

patient satisfaction, quality of care, and reduced errors due to miscommunication

Solution: Catalan deployed a program for coordinated care planning and delivery using the IBM Cúram solution to provide a complete view of the patient for care delivery and collaboration across clinicians and social workers. A "Software as a Service" model was enabled by IBM business partner Iteria. Iteria purchased the licenses from IBM and offered the solution on a cloud that allows the customer to pay for it on a subscription basis.

Solution components:

- IBM Cúram Social Program Management
- IBM Cúram Outcome Management
- IBM WebSphere

South Florida Behavioral Health Network (SFBHN) replaces information scattered over twenty databases with a holistic view of the patient

"We invited Otsuka and IBM to conduct this pilot because of their innovative approach to improving efficiencies within our mental health system."

- John W. Dow, President and Chief Executive Officer of the South Florida Behavioral Health Network, Inc.

Background: South Florida Behavioral Health Network, Inc. (SFBHN), a mental health services provider network in Florida needed a coordinated care and healthcare analytics solution, thereby gaining the ability to offer consistent, patient-centric mental healthcare services and predict preventable mental health crises to help reduce hospitalizations and incarcerations.

Issues: The SFBHN's goal is to develop, implement and refine a coordinated system of behavioral healthcare that enhances prevention, treatment and recovery services for those at risk of or who suffer from mental health and substance abuse problems. Miami-Dade County has one of the highest proportions of mentally ill people in the United States at 9.1 percent, which is three times the national average, making it ground zero for finding and implementing a smarter mental healthcare solution.

SFBHN implemented a solution that has helped to reduce the probability of re-arrests of mental health patients by 50%

Risk Management

reduces probability of re-arrest for mental health patients in crisis by 30%-50%

Visibility

in near-real-time into analysis of service provider activity improves use of public funding

Individualized

insight into patient risk factors through use of analytics

Solution: IBM and business partner Otsuka Pharmaceutical Co., Ltd. provided a solution that supports coordinated care management and healthcare analytics to help deliver more consistent, harmonized patient care throughout its provider network.

Solution components:

- IBM Cúram Social Program Management Platform
- IBM SPSS Modeler
- IBM Cognos Business Intelligence V.10
- IBM DB2
- IBM InfoSphere
- IBM WebSphere