Kentucky Technology Innovators Driving Improved Health and Health Care

personal medicine plus

Preventing Diabetes and Hypertension through mobile technology

STARTUP
+HEALTH

XLerateHealth

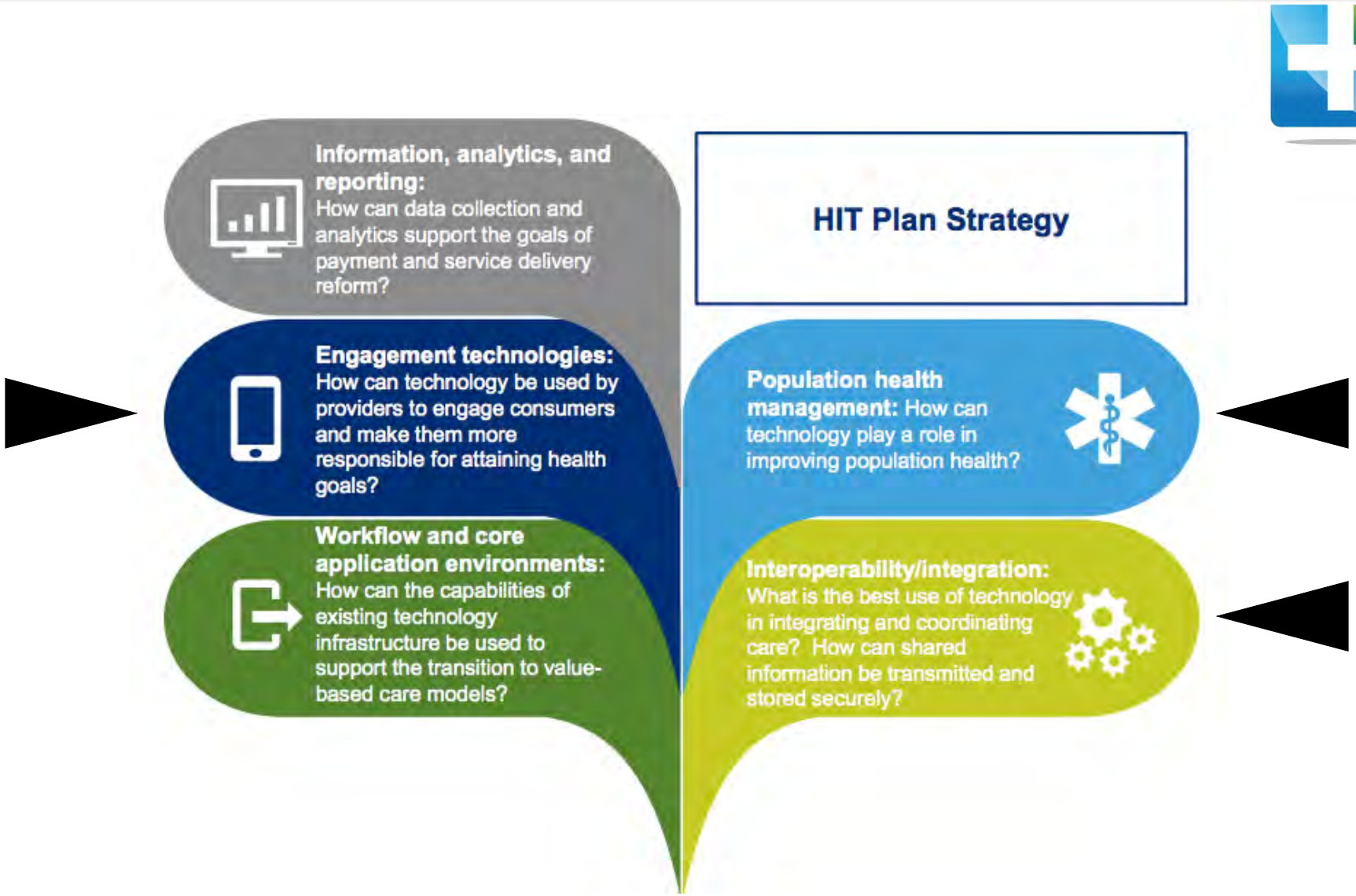
Cleveland Clinic

J.P.Morgan

HEALTH
DATAPALOOZA™

HEALTH:FURTHER

mHEALTH SUMMIT
TECHNOLOGY • BUSINESS • RESEARCH • POLICY


HIT Plan Strategy
Information, analytics, and reporting: How can data collection and analytics support the goals of payment and service delivery reform?
Engagement technologies: How can technology be used by providers to engage consumers and make them more responsible for attaining health goals?
Workflow and core application environments: How can the capabilities of existing technology infrastructure be used to support the transition to value-based care models?
Population health management: How can technology play a role in improving population health?
Interoperability/integration: What is the best use of technology in integrating and coordinating care? How can shared information be transmitted and stored securely?

Engagement Technologies

- learn and adapt to consumer behavior
- test new behavior change approaches
- use clinical implementation to drive compliance

“90% of patients say app over medication

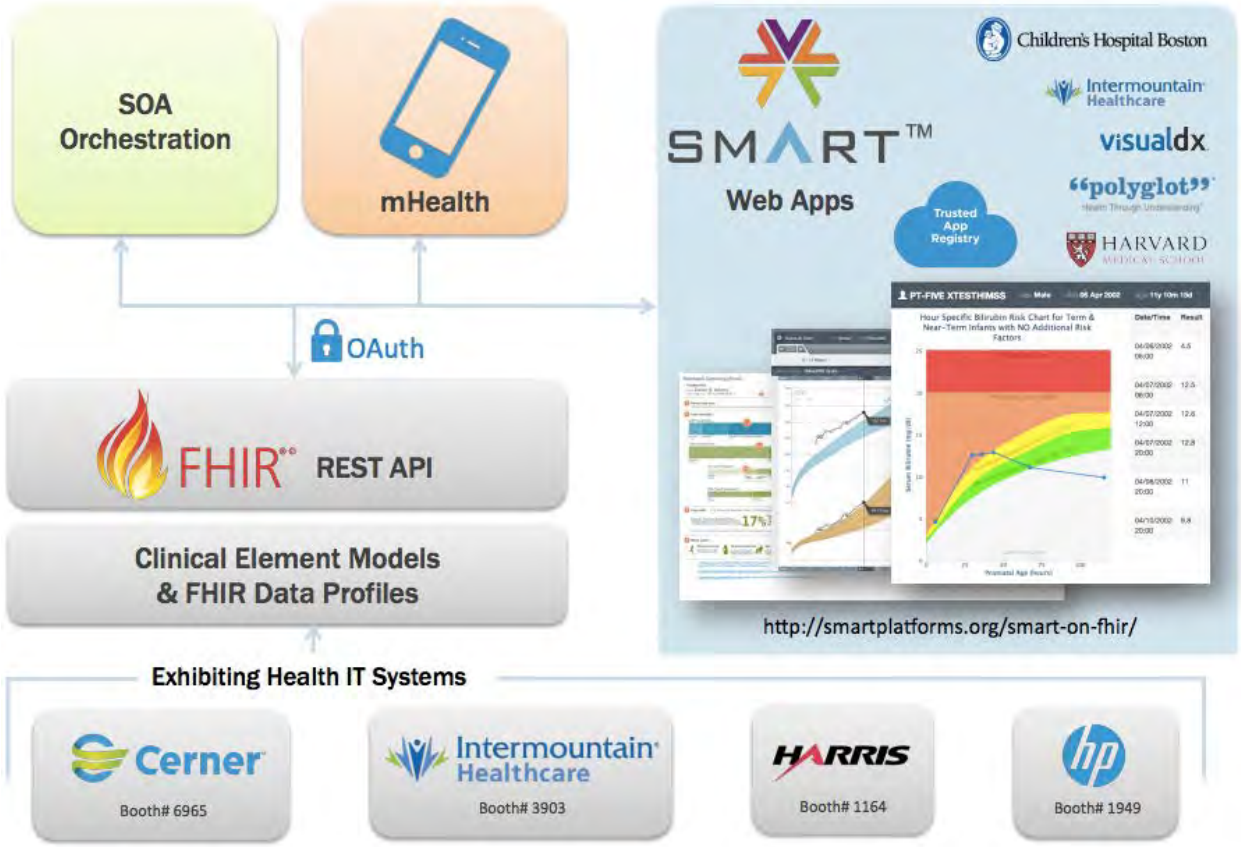
“mhealth app better than metformin”

Population Health Management

- low tech identification of patients
- real time data from patients at home
- scalable interventions for at-risk and rising risk population

Integration/Interoperability

- Ability to integrate with large EMRs via one API
- Allows seamless data flow from patient software to EMR



Other SIM Reform Initiatives

Population Health Improvement Plan

- Increase focus on prevention
- Encourage consumer engagement and accountability

Kentucky Health NOW

- Reduction of Diabetes by 10% by 2019
- Reduction Obesity by 10%
- Reduction of Heart Disease by 10%

Unbridled Health

- Self management programming

Personal Medicine Plus is a mobile prevention solution that **identifies patients early and prevents disease onset**.

health information- AHA and ADA evidence based

+

mobile features- mobile engagement evidence

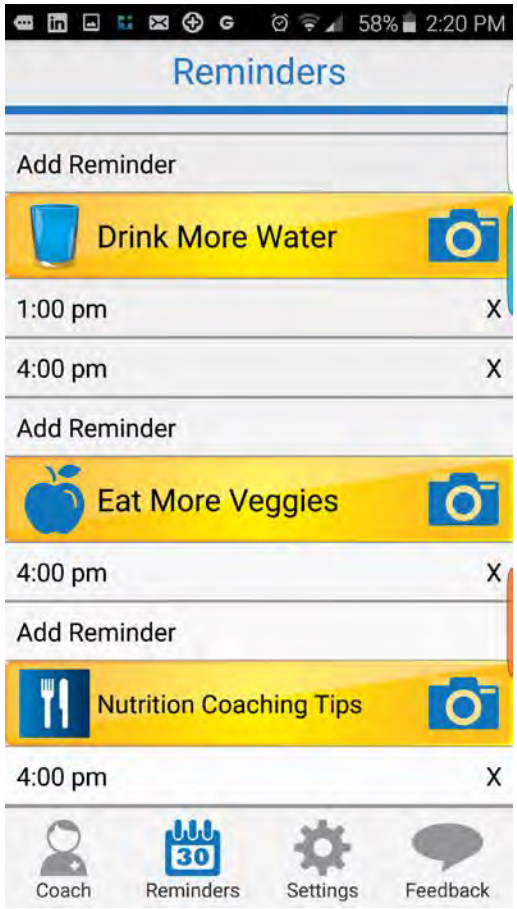
- Gamified Pedometer
- Nutrition tracker
- Social Share

Capture Real Time Biometric Trends

- Integrated Biometrics
- Color Coding
- Intervention Messaging
- BMI trending

Meet Criteria for Meaningful Use 3

- Clinical Decision Support “last mile”
- Intervention Messaging
- User Response Data
- 15% of population Target



Outcomes

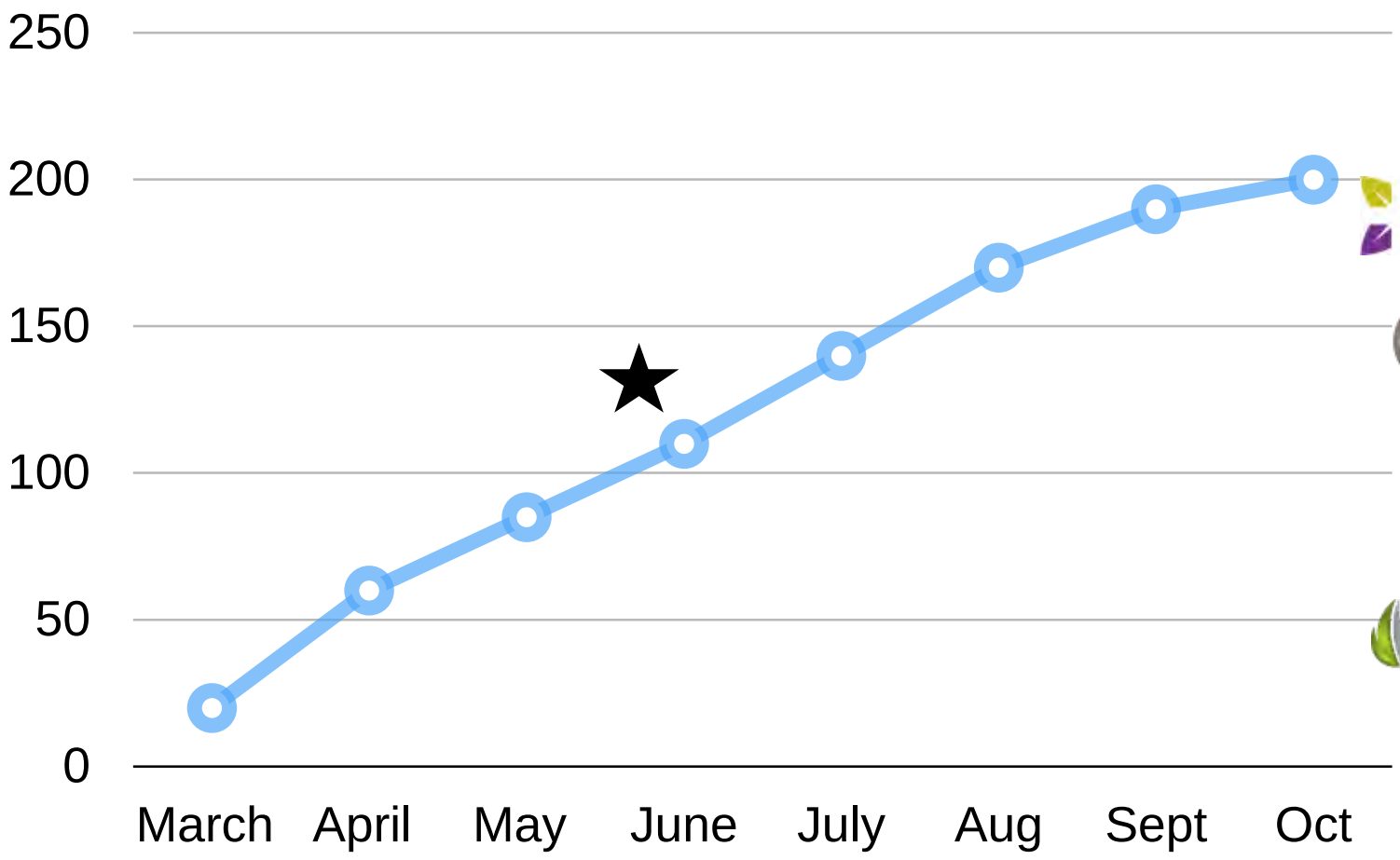
17 year old male with KY Medicaid

20% reduction diastolic blood pressure

3% reduction of weight

6% Increase of PROMIS Score Physical and Mental

Patients Enrolled



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Washington University in St. Louis Physicians

Tennova™ Healthcare

North Shore LIJ

Team

Clinic Executive
Startup Advisor
Boston University
Global Health training
Harvard intern

IBM consultant
Lonely Planet
Big Nerd Ranch
Serial entrepreneur

Advisory Boards
Doximity
Healthtap
20 years practicing medicine

Advisors

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Thank You

Contact us at brandi@personalmedicineplus.com

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Consumer Health Infomediaries

Fragmented Information. Medical Errors. $300B Cost.

Consumer Health Infomediary

A New Industry

Medica Nexus
Consumer Health Infomediaries

- New Laws
- New Incentives
- New technologies

All your health information in one secure place, on your phone or computer.

Connected everywhere

OneStop™ for Consumers

- ✓ Download it
- ✓ Add your portals
- ✓ Secure it
- ✓ Share it
- ✓ Use it
- ✓ Achieve better health!

Business Model

$40

Revenue[1]

Per account per year (average)

$200

Value Delivered[2]

Per account per year (average)

1. **Revenue:** premium data services, apps, messaging, research.
2. **Value Delivered:** lower costs, better care, better health.

Lower costs: reduced hospitalizations, emergencies, medication use, complications, duplicate tests and procedures; *better care:* improved quality, meaningful use; reimbursement; *better health:* improved # healthy days.

Market Opportunity

Target Markets Metro areas > 250K	**200**
Opportunity 50%	**100**
Revenue Year 7	**$1B**

First mover wins most in each community.

Team

Chief Executive Officer: Judah Thornewill, PhD

Entrepreneur - direct marketing, health IT, health information exchange, digital health.

Chief Technology Officer: William Yasnoff, MD, PhD*

Organized and led creation of the ONC at HHS. Globally recognized expert in Health Record Banking.

Chief Medical Officer: Tom Jones, MD*

Practicing physician and Professor, University of Chicago. Chief Medical Officer, Oracle. Co-founder of Tolven.

Vice President of Engineering: Frank Schillinger, MS

VP Development Services, Tolven. BS, MS Computer Science, UCLA.

Vice President of Mobile Infrastructure: Mark Cummings, PhD *

CTO and Founder of Orchestral Networks, a Silicon Valley start-up with technology uniquely suited to solving converged operations requirements.

Vice President of Digital Health Innovations: Robert Esterhay, MD *

Developed PDQ, one of the world's most widely adopted online resources for physicians and patients. Professor, Department of Health Management and Systems Sciences, University of Louisville.

Vice President of Market Development: Mark Branning*

30 years of success in healthcare IT product development and implementation.

Vice President for Cybersecurity and Privacy Policy: Lance Hoffman, PhD*

PhD Computer Science Stanford. Director of the Cyber Security Policy and Research Institute at The George Washington University.

Milestones

Company/Team	✓
Market research	✓
Technology platform	✓
OneStop app, v0.1	✓
Community kick-off	✓
First client	✓
Louisville build	
Louisville deployment	
Expansion	

Community Kick-off!

LET'S TALK

Judah Thornewill, CEO

502-417-1841

www.medicanexus.com

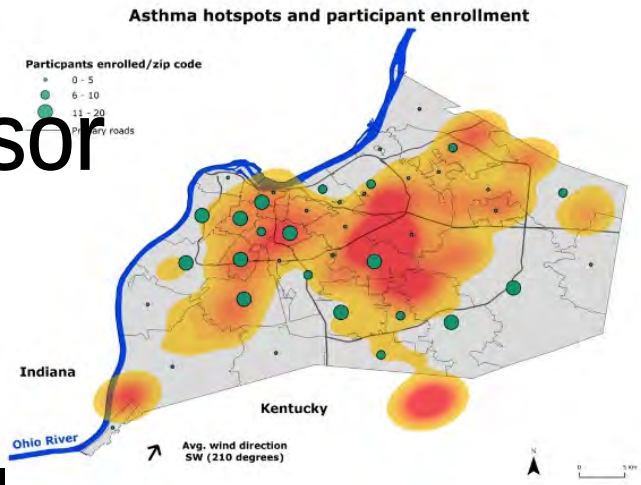
THANK YOU

AIR LOUISVILLE

Robert Wood Johnson Foundation grant

+

Propeller Health sensor



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Citizens of Louisville

INSTITUTE FOR HEALTHY AIR WATER & SOIL

LOUISVILLE JEFFERSON COUNTY 1778 2011

PROPELLER HEALTH

AIR LOUISVILLE

5 goals

1. Reduce asthma-related costs by 20% healthcare (hospitalizations, number of inpatient days, ER visits)
2. Identify the top 5 environmental drivers of asthma attacks
3. Use data to inform public policy
4. Increase public awareness of air quality in Jefferson County
5. Create a sustainable and local partnership supported into the future by self-insured employers, health plans and non-profits

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PROPELLER HEALTH

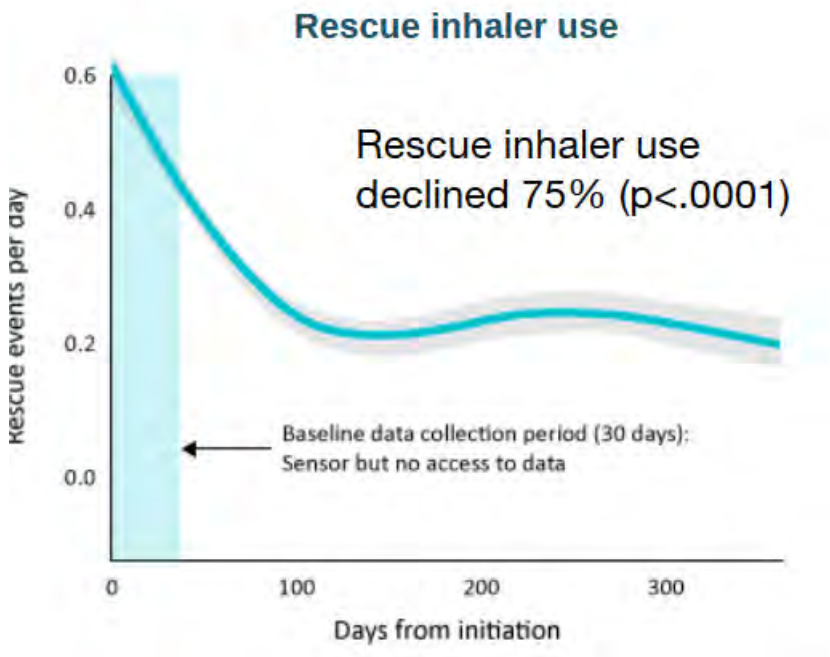
Louisville Pilot Project 6/2012 – 1/2014

299 asthma patients

5,430 unique rescue inhaler events recorded

27,197 person-days of data

- 93% of patients were classified as well controlled at study completion
  - 33% increase from program start
- 39% increase in asthma-free days for study participants
- 40% decrease in trips to the ER and urgent care



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Propeller Health system

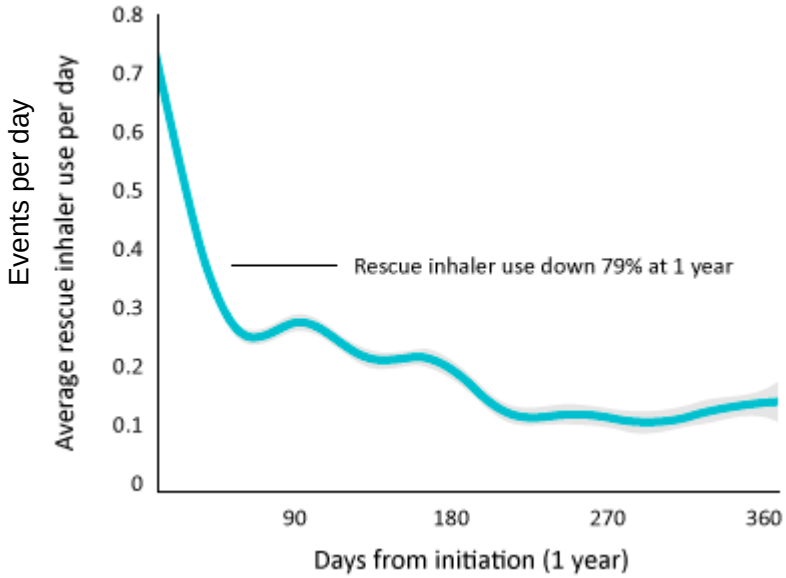
Medication Sensors

Mobile Applications

Care Team Tools

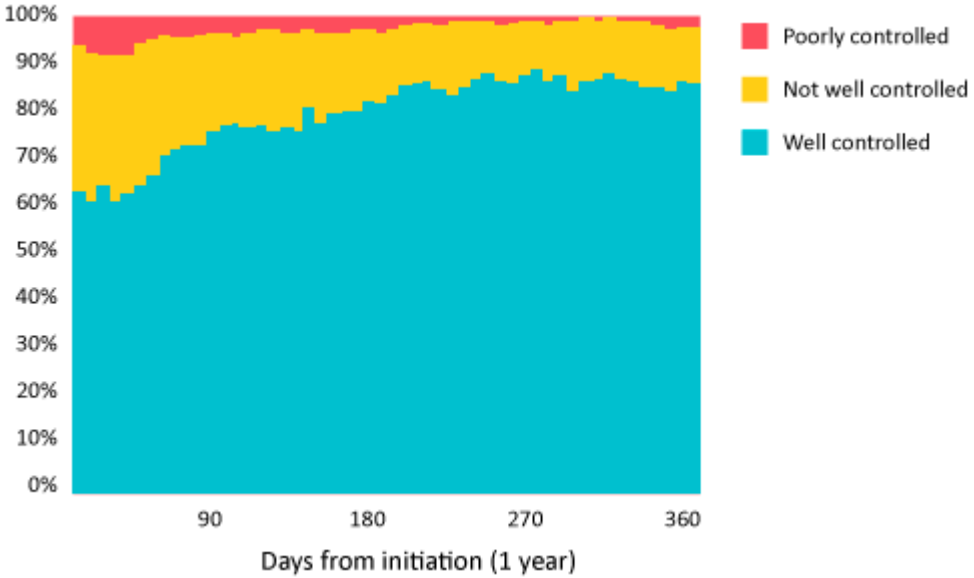
Aggregated Clinical Outcomes - Control

Rescue inhaler use



Rescue inhaler use down 79% at 1 year

Asthma control



- 39% *more* users were well controlled
- 89% *fewer* users were poorly controlled

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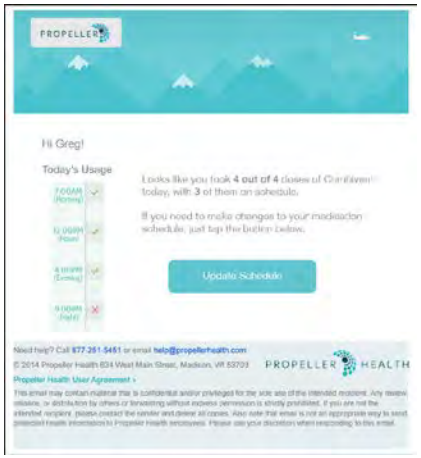
Multi-faceted approach to improving adherence

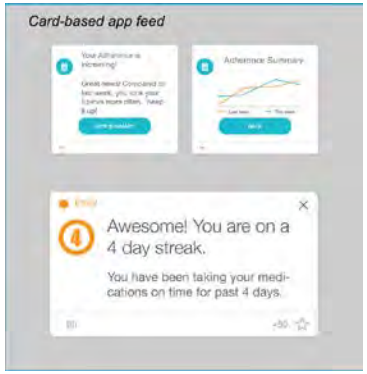
- Non-adherence is complex and multi-dimensional
- Improving adherence requires an equally multi-dimensional solution

Personalized Emails



SMS/Push Reminders

Personalized Adherence Feedback



On-sensor A/V Reminders

Care Team Alerts and Notifications

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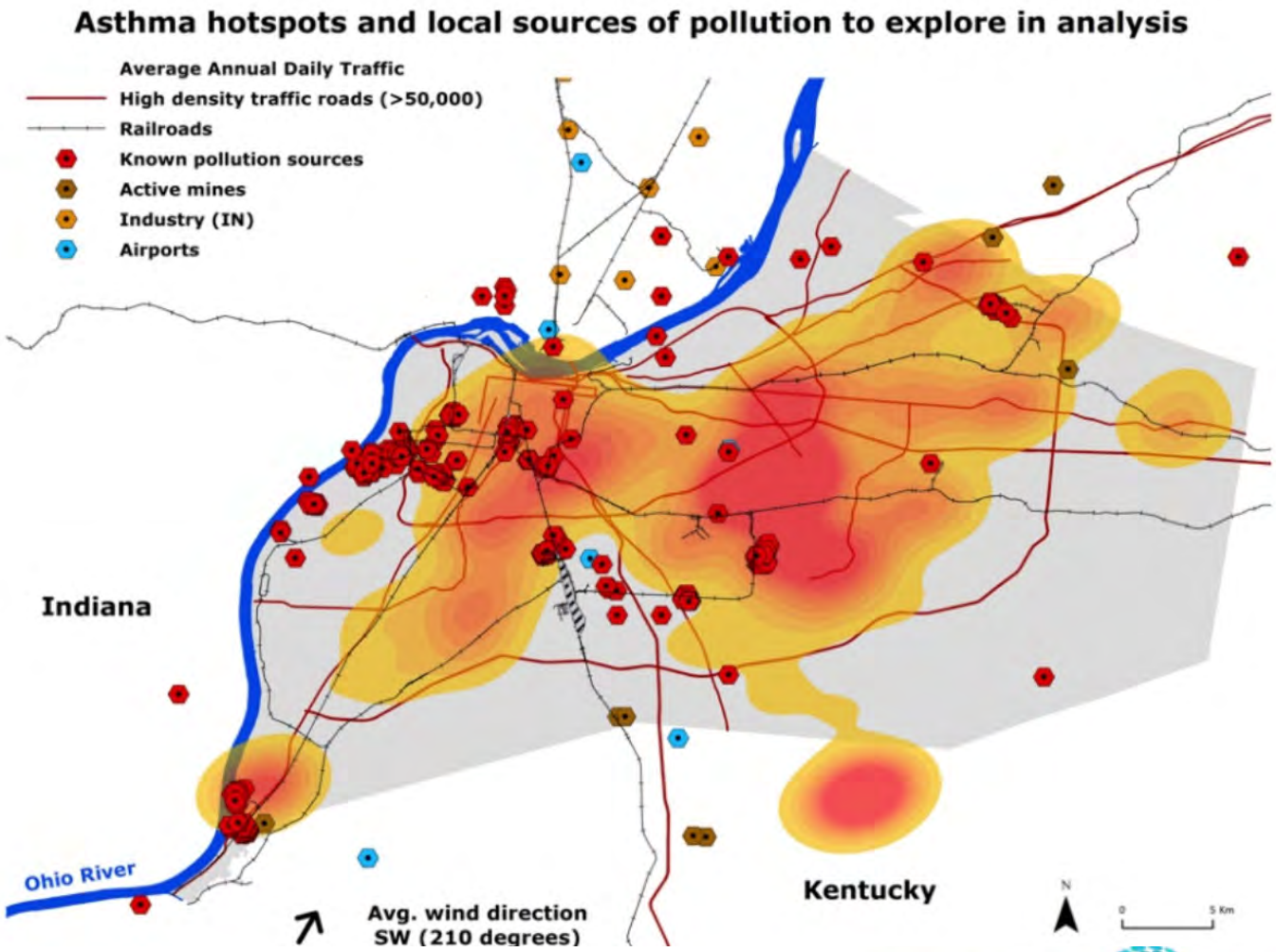
Identifying asthma triggers from the pilot



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AIR WATER & SOIL

PROPELLER HEALTH

AIR Louisville and employers

- Self-insured employers partner with us to reach employees with asthma or COPD
- Test the Propeller Health sensor and the automatic data collection of inhaler use
- Use the data to help participants manage their symptoms
- AIR Louisville covers the cost the sensors, marketing and enrollment
- Review claims data before and after the intervention to test the intervention's effect on healthcare costs

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Current Louisville partners

- Brown-Forman – Currently enrolling employees
- Papa Johns – Currently enrolling employees
- Passport Heath Plan – Currently enrolling members
- Family Allergy and Asthma – Currently enrolling patients
- Metro Louisville employees – Committed partner, enrolling employees in October
- Seven Counties – New partner, starting enrollment discussions
- WHAS 11 – New partner, starting enrollment discussions
- JenCare – New partner, starting enrollment discussions
- University of Louisville employees – Potential partner, continuing enrollment discussions
- Humana – Potential partner, continuing enrollment discussions
- Kindred Healthcare – Potential partner, starting enrollment discussions

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Sustainable and local partnerships

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PIZZA PAPA JOHN'S
BETTER INGREDIENTS. BETTER PIZZA.

BROWN-FORMAN
LIVE WELL

Robert Wood Johnson Foundation

FAMILY Allergy & Asthma
Breathe Right... Live Well.

LOUISVILLE METRO PUBLIC HEALTH & WELLNESS

aafa Asthma and Allergy Foundation of America

AMERICAN LUNG ASSOCIATION. IN KENTUCKY

COMMUNITY FOUNDATION OF LOUISVILLE

Healthy Hoops

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LOUISVILLE · JEFFERSON COUNTY METRO 17 78

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PROPELLER HEALTH

Questions?

www.airlouisville.com

www.instituteforhealthyairwaterandsoil.com

www.propellerhealth.com

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david@propellerhealth.com

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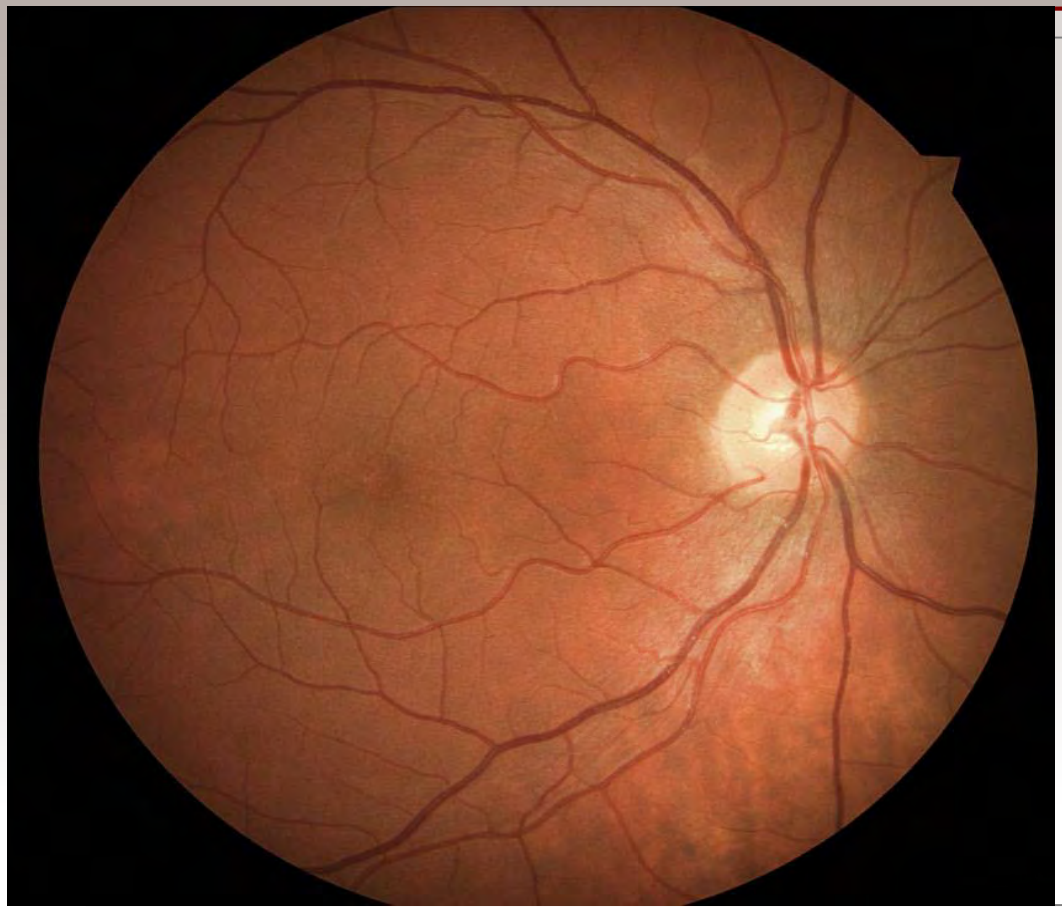
PROPELLER HEALTH

“DON’T LOSE SIGHT OF THE IMPORTANCE OF EYE EXAMS”



Using Telehealth in Primary Care Centers to Extend Access to Diabetic Retinopathy (DR) Screening

A Collaborative Effort between the University of Kentucky & St. Claire Regional Medical Center

Mary Horsley RN, CCRP
St. Claire Regional Medical Center

St. Claire Regional Medical Center

Purpose

- **Diabetic Retinopathy is the leading cause of new cases of blindness among adults aged 20-74 in the United States.**
- **Nearly 3 in 10 Americans with diabetes over the age of 40 suffer from vision impairment caused by diabetic retinopathy.**
  - **About 4.4% have a form of the condition so severe it threatens their eyesight.**
- **10.7% of adults in Kentucky have diabetes, higher than the national average.**
  - **Less than half of those self-report yearly eye exams.**
- **Limited access to eye care providers!**

The study

- To improve access to eye exams to help uncover diabetes related eye disease
- Capture patients when they come in for routine appointments

The Solution

drs
Digital Retinography System

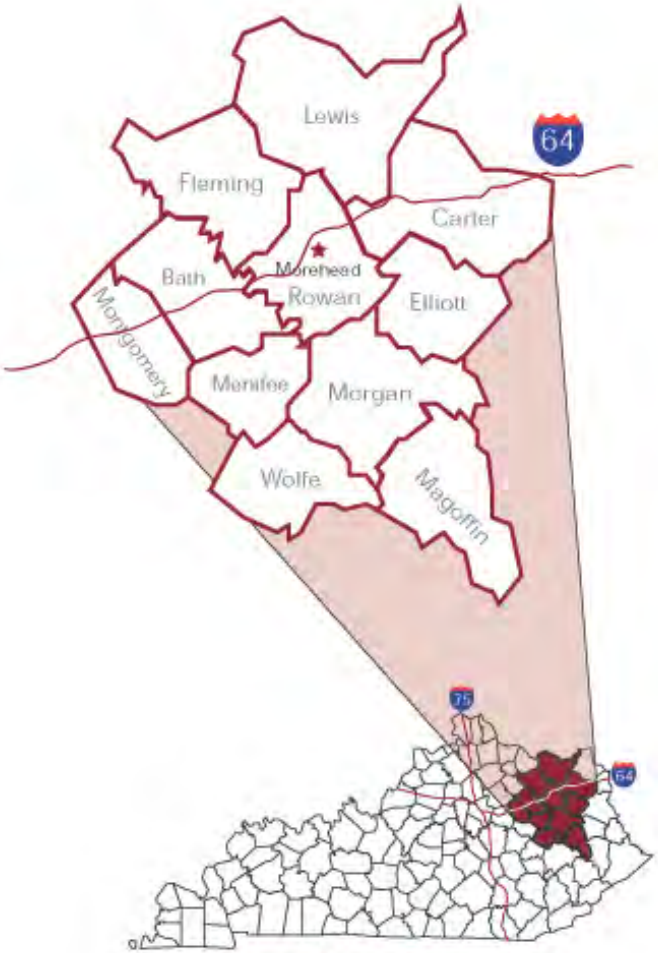
- Automatic, hands-free, small footprint, ease of use
- High quality, high reliability
- Touch screen interface and compact design
- Internet ready for remote viewing
- Quick patient throughput: exam in less than 1 min
- No operator skill required
- Enables large scale screening

St. Claire Regional Medical Center

The Collaboration

- Exams uploaded to cloud server
- Read by ophthalmologist at the University of Kentucky
- Report sent to secure web server & then uploaded to EMR along with images
  - Helps improve HEDIS score/reimbursement rate
  - Helps meet meaningful use requirement
- More than 600 exams to date
  - 43 patients with pathology
  - 26 with diabetic retinopathy

SERVICE AREA



Eleven County Service Area

St. Claire Regional Medical Center

St. Claire Regional Family Medicine — St. Claire Medical Group

Morehead Medical Specialists — St. Claire Medical Group

Cave Run Surgical Specialists — St. Claire Medical Group

St. Claire Regional OUTPATIENT CENTER

St. Claire Regional HomeCare

St. Claire Regional FAMILY MEDICAL SUPPLY

St. Claire Counseling

St. Claire TeleCare

NORTHEAST AHEC

CHER — Center for Health Education and Research

INFUSION SOLUTIONS

Questions

mahorsley@st-claire.org
606-783-6476

St. Claire Regional Medical Center

mevisit

meVisit Creates Space in a Physician's Day

"House Call by Smartphone" Provides Efficient, Documented Care

<4

Average minutes to complete a fully documented patient interaction with meVisit

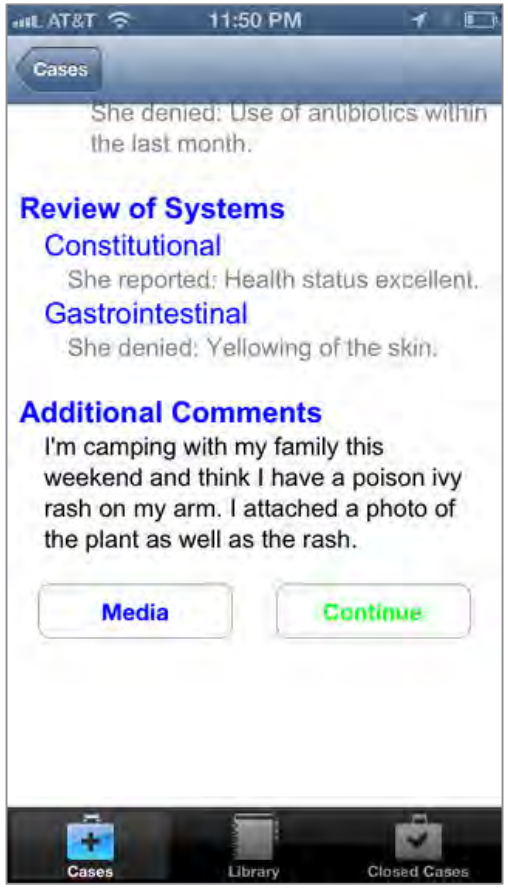
19%

Productivity increase from using meVisit, equivalent to gaining about 1 extra day

15%

Decline in per capita costs with use of meVisit

Image Credit: meVisit



Source: Marketing & Planning Leadership Council interviews and analysis.

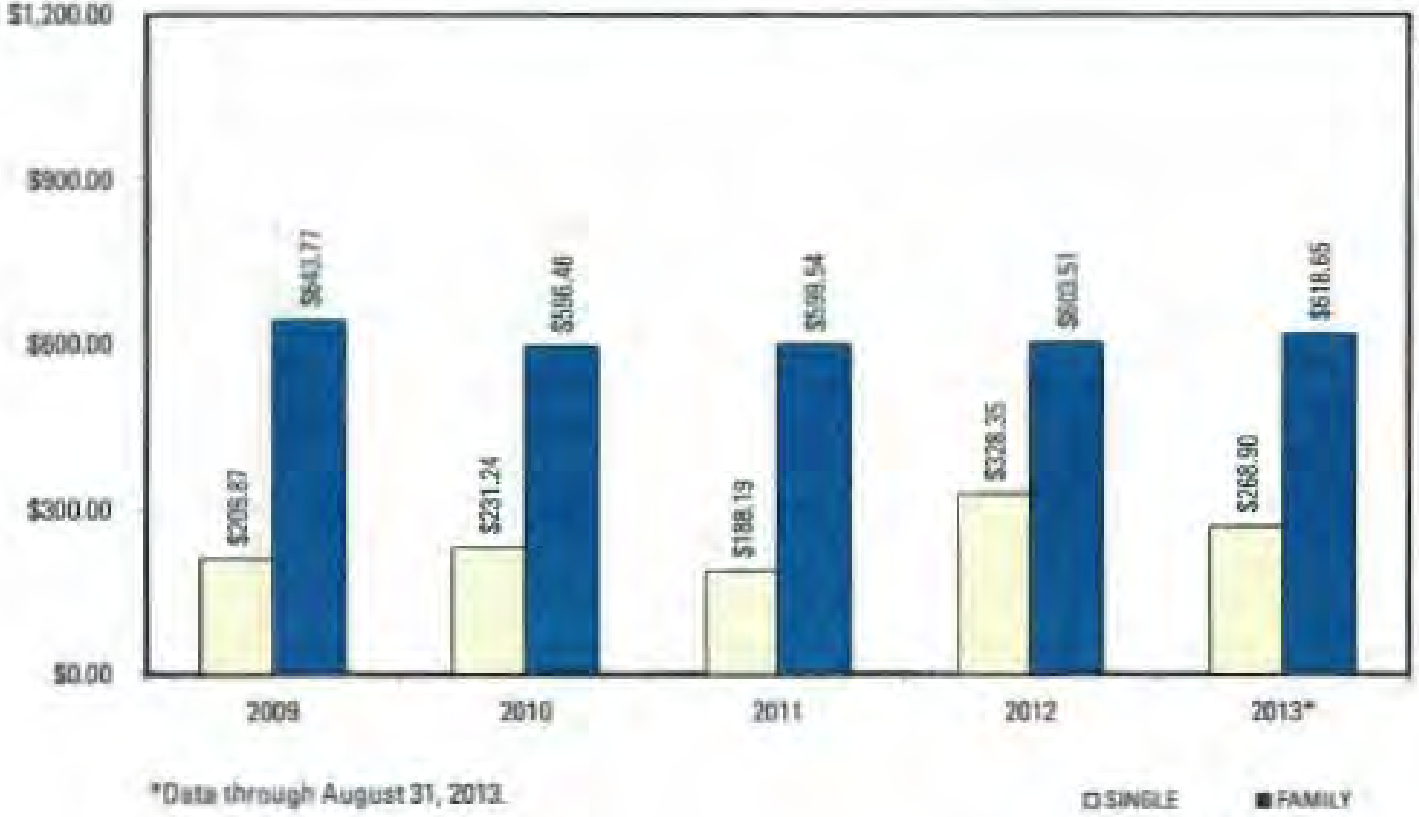
Online Care Comparison

	meVisit Telehealth	1st Generation Telemedicine
Keeps Own Doctor	✓	✗
Documentation <5 Minutes	✓	✗ *(12-17 minutes)*
Mobile Platform for MD & Patient	✓	✗
Supports "Medical Home" Model	✓	✗
Supports AMA & AAFP Online Care Policy	✓	✗
Flexibility for Clinician *(e-Visit vs Phone vs Video Chat)*	✓	✗
Chronic Disease/Moderate-Complex Care *(mHealth in Chronic Disease Management: Case Study of a Mobile-to-Mobile Delivery Model, Global Telemedicine and e-Health Updates-Knowledge Resources, Vol. 7, April 2014)*	✓	✗

19.3% Increase
Practice Capacity
BASELINE
14.93% Decrease
Per-Capita Costs

FARMERS RURAL ELECTRIC COOP CORP

MEDICAL CLAIMS PEPM COST SUMMARY



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Translated Benefits of mTelehealth

1. Reduced Hospital Re-admissions
2. Divert E.D. Misuse
3. Reduced "No-Shows"
4. Transitional Care / Home Health f/u
5. Chronic Care Management
   - Extended Access Augmented Communications
6. Hyper-specific Marketing
   - "Walkie-Talkie" to Patient + Demographics
7. Primary Care → Specialty/Surgical Clinics

Peer-Reviewed Academic Citations

•*mHealth in Chronic Disease Management: Case Study of a Mobile-to-Mobile Delivery Model*, Global Telemedicine and eHealth Updates-Knowledge Resources, Vol. 7, April 2014.

•*Implications of a Mobile-to-Mobile Online Delivery Model: A Case Study*, February, 2014, mHealth Innovation Best Practices From the Mobile Frontiers, Chapter 20, HiMSS Pub, Wash DC

•*How Mobile-to-Mobile Online Care Will Drive Sustainability for Doctors and Health Plans,* November, 2013, The Advisor, Healthcare, Reinsurance & Insurance News.

•*ACO mHealth Strategy: How Mobile-to-Mobile Online Care Will Drive Sustainability,* September, 2013, Accountable Care News.

•*How Mobility Within the Medical Home Can Positively Disrupt Healthcare,* Journal KAFP, 2013 Summer; Vol 79; 20-23.

•*Extending the Walls of the Medical Home: How Mobility Will Permanently Disrupt Healthcare Delivery,* June, 2013, Medical Home News, Volume 5, Number 6.

•*mHealth and 2nd Generation Telemedicine: Making the Medical Home Mobile to Provide Care for the Worlds Population,* Global Telemedicine and eHealth Updates-Knowledge Resources, Vol. 6,2013; 58-60.

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Share Your Knowledge & Transform Our World
KY SIM HIT Innovation Forum
9/29/15

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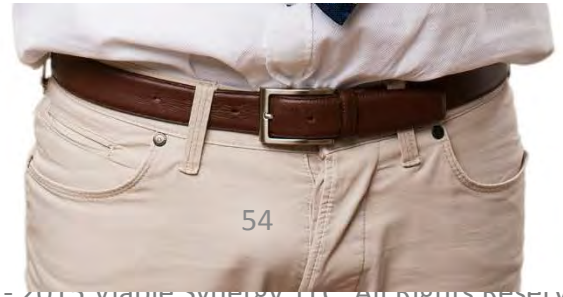
Typical Knowledge Management System

Patient Knowledge Dumping Syndrome



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Knowledge Retention Rates:

5% what we HEAR

10% what we READ

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Edgar Dale, The Learning Cone of Experience,
National Teaching Laboratory

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Knowledge management can be difficult, risky, and costly
Especially in Health Care

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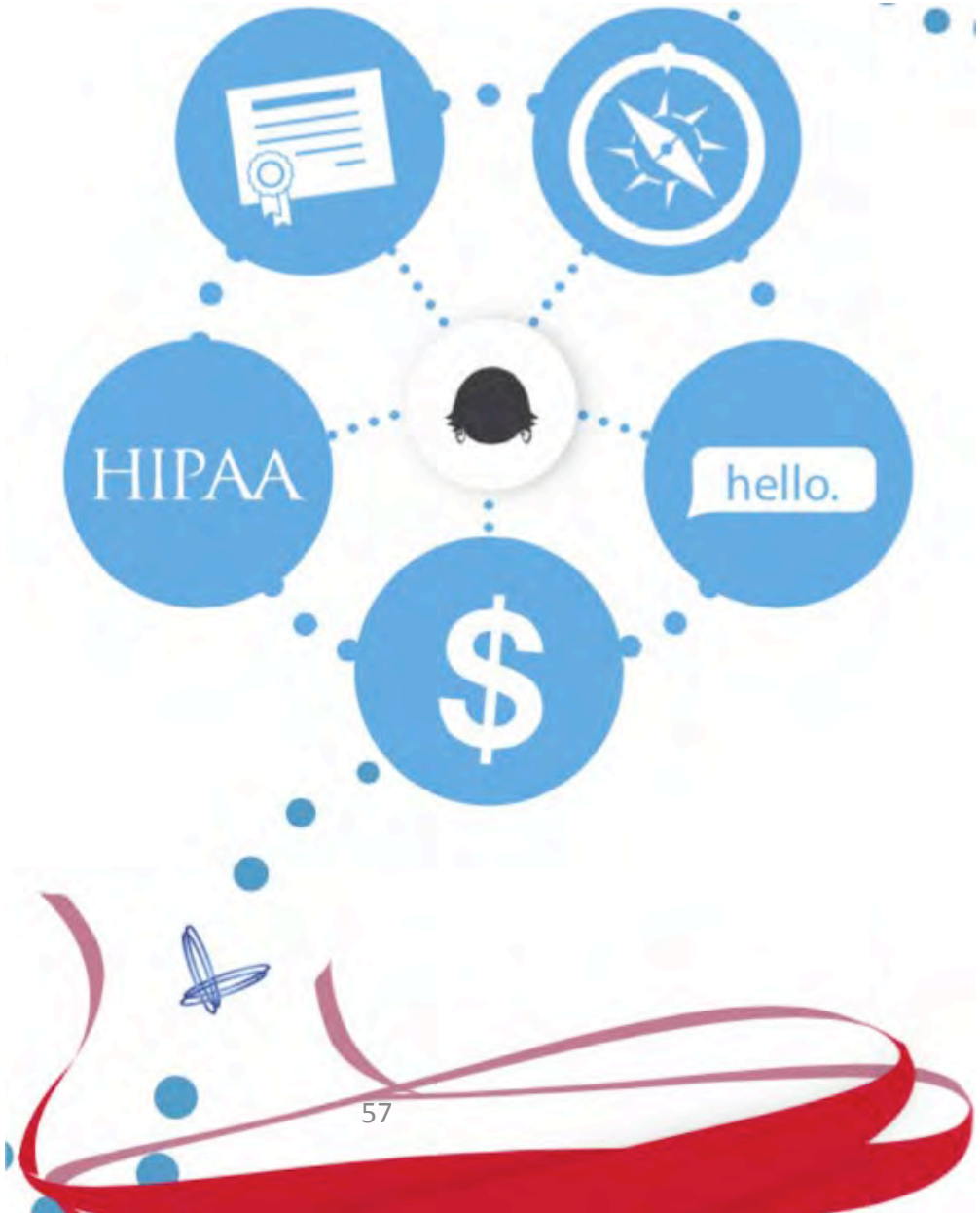
We believe it should be easy…



That’s why we created…

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The secure, simple, and effective way to
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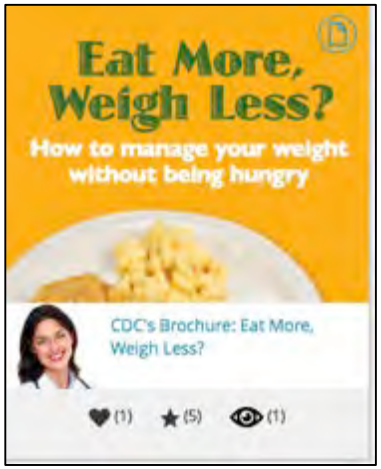
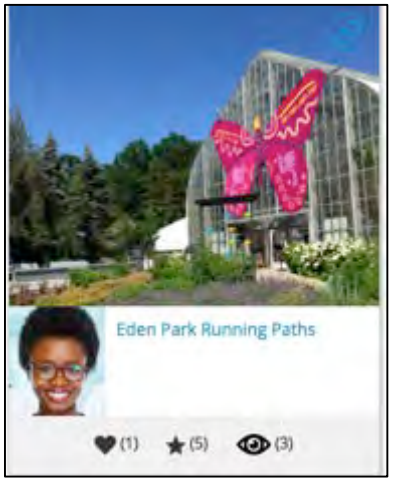
Staff Education

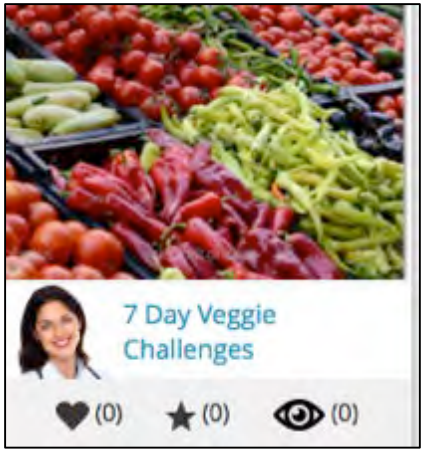
Patient Education



Local Health Activities

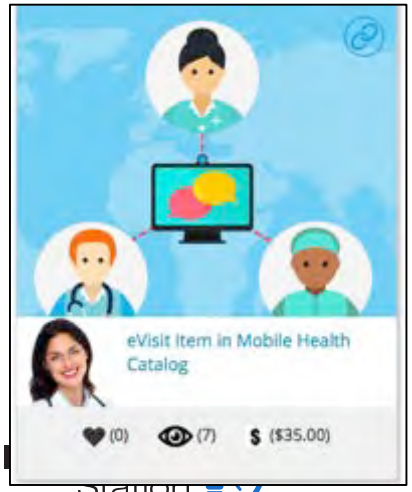


Achievement Activities

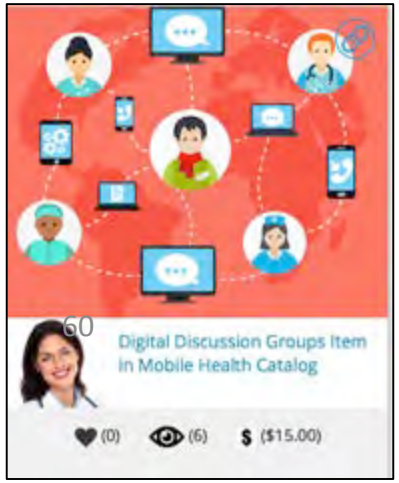


Sell Services & Support

eVisits



Digital Discussions



Pharmacy & Lab Services

Enhance Engagement w/ Gamification

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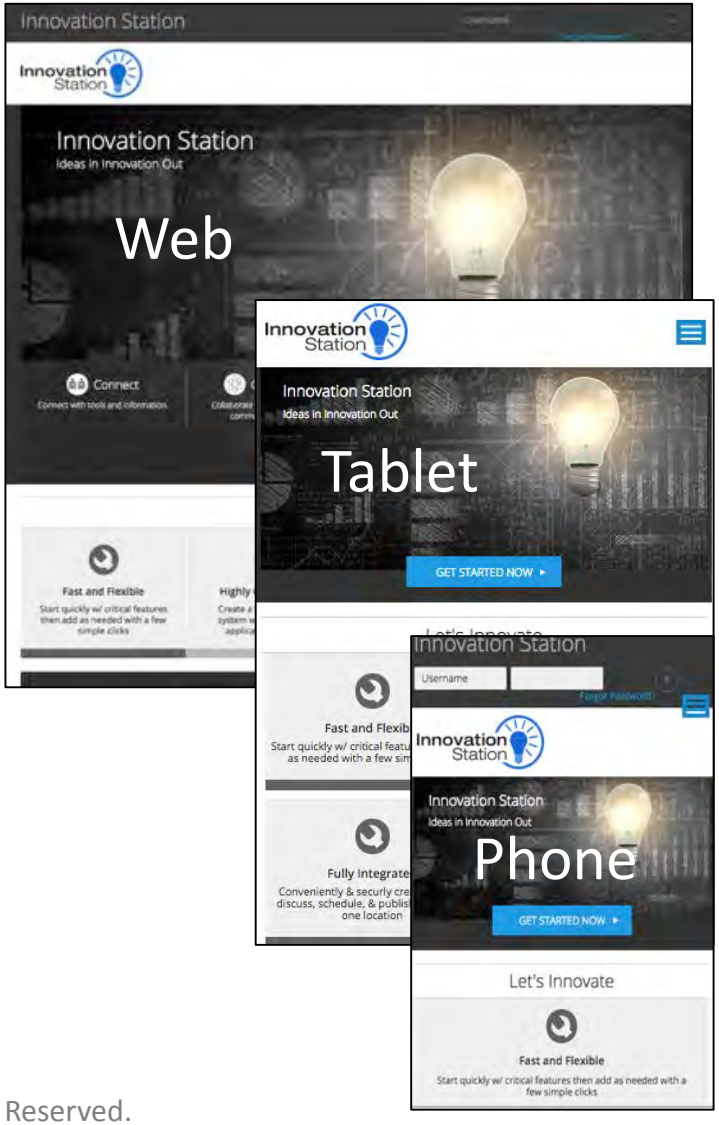
Innovation Station Knowledge Monetization Platform

Innovation for Life

Streamlines process of creating, managing, publishing, distributing, and consuming content

- Secure, fully, integrated knowledge monetization platform
- Designed for enterprises operating in regulated industries
- Hosted in the Cloud
- SaaS business model
- Responsively designed
- Mobile friendly
- Integrated with a content network for selling, buying, and sharing content



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Stats:

- >1,000 Members
- 25 Organizations
- 8 Medical/ health conditions
- 10 Practice areas
- 3 Membership organizations/ trade associations
- 2 Teaching institutions
- >400 Health Startups

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LUCINA HEALTH

KENTUCKY STATE INNOVATION MODEL (SIM)

Vision

We will become the industry leader in obstetrics informatics that enables our customers to achieve significant improvements in pregnancy care to improve birth outcomes, and the quality of life while reducing the overall cost of care.

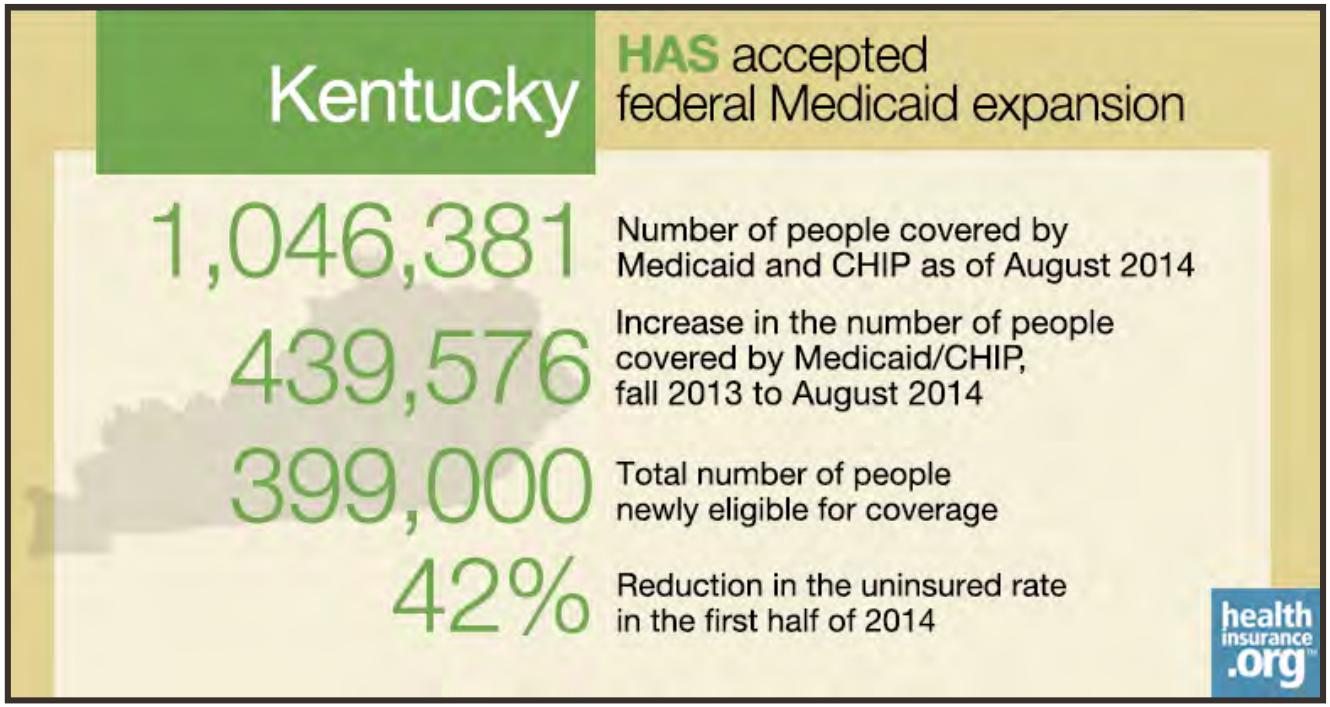
Why is our Vision so important?

- The US ranks works than over 20 countries in pre-term birth, maternal mortality, & infant mortality. KY is among the top 5 worse in the US.
- Healthcare costs for JUST the NICU care of pre-term mothers and babies are estimated to be as high as 15% of all healthcare costs. If the first three years of life are included, it could account for more than 25% of healthcare costs.
- Examples of adverse outcomes associated with Pre-Term birth include:
  - Cerebral Palsy
  - Pulmonary Dysfunction
  - Neurological Deformation
- Expecting mothers that suffer from a variety of conditions increase the chances of Pre-Term birth. Examples include:
  - Smoking
  - Obesity
  - Drug use
  - Hypertension

What did we uncover?

- Critical, unmet need to drive change in obstetrics
  - Prenatal care process is fragmented
  - Resources are misappropriated
  - Data is inadequate; systems are inefficient
  - Physician incentives are not aligned with positive outcomes
- A broader solution offers a much larger opportunity
  - $86 billion annual hospitalization costs for pregnancy and childbirth; highest of any area of medicine
  - $57,000 average Medicaid cost for an adverse outcome
- Medicaid MCOs prioritize need to reduce NICU and long-term costs of preterm babies

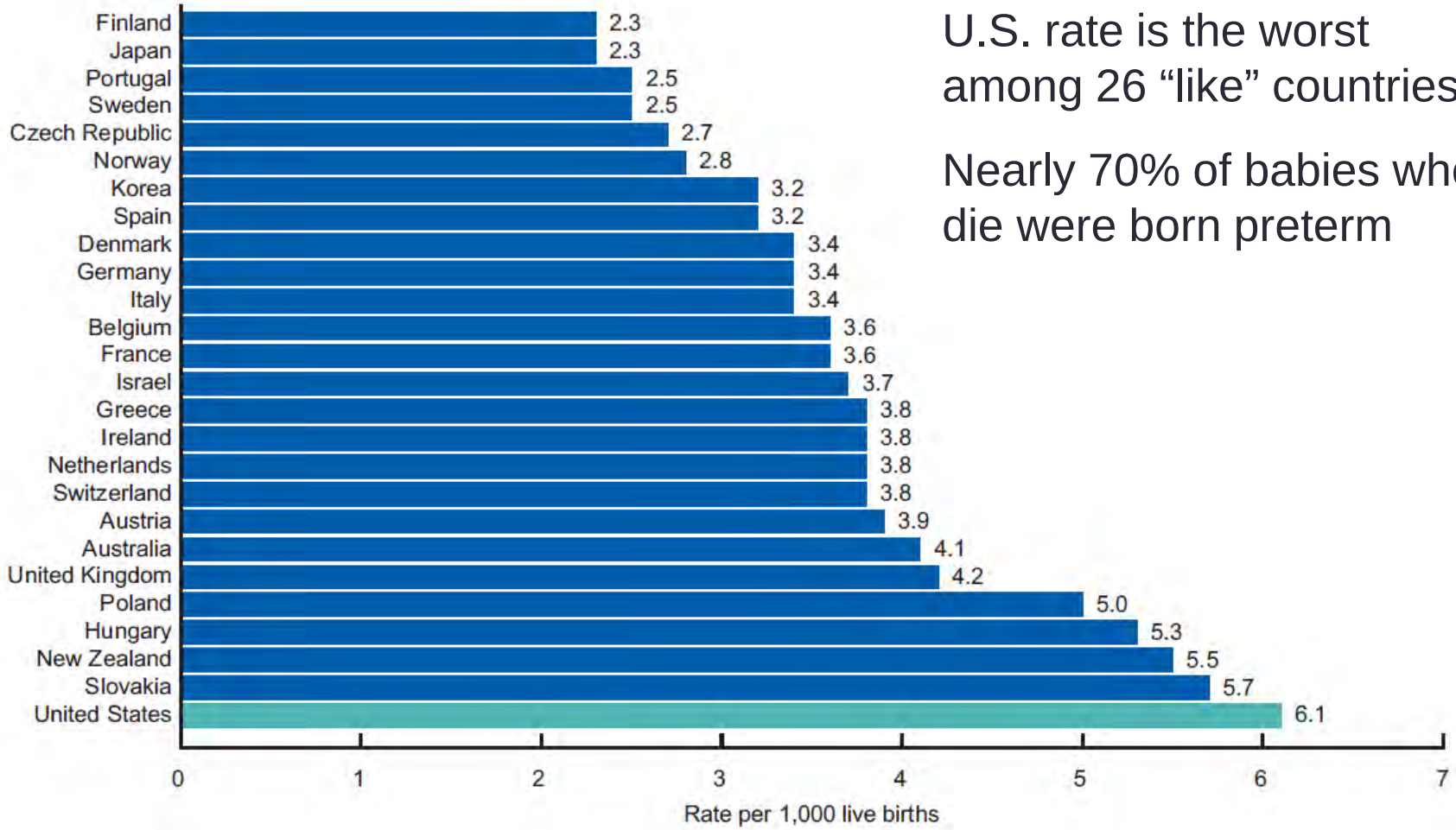
Example: Kentucky Enrollment is Up 70%



Among the highest Medicaid expenditures in Kentucky:

- 9.22% are for delivery/childbirth when categorized by condition or service
- 20% are for children when categorized by population

Infant Mortality

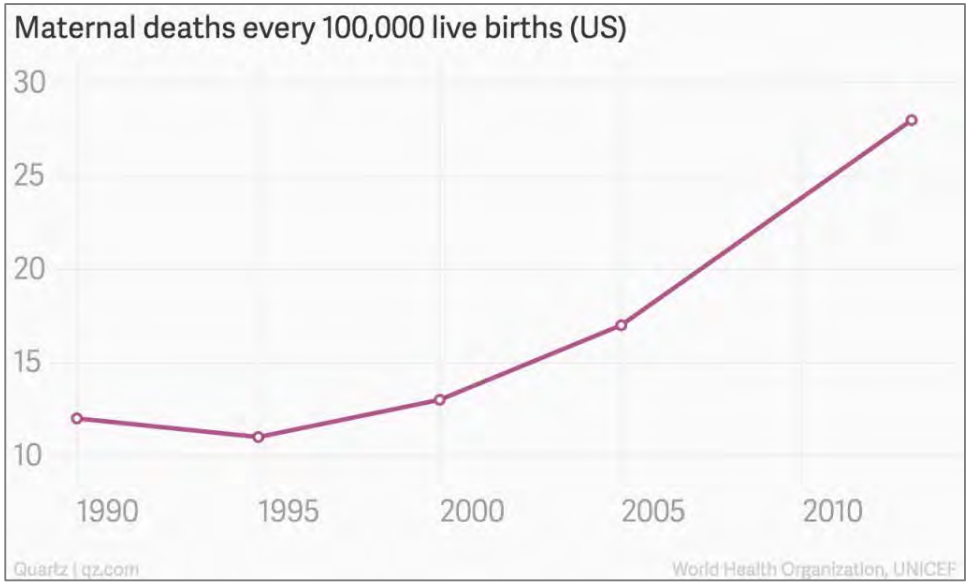


U.S. rate is the worst among 26 “like” countries

Nearly 70% of babies who die were born preterm

MacDorman MF, Mathews TJ, Mohangoo AD, et al. International comparisons of infant mortality and related factors: United States and Europe, 2010. National vital statistics reports; vol 63 no 5. Hyattsville, MD: National Center for Health Statistics. 2014.

Maternal Mortality

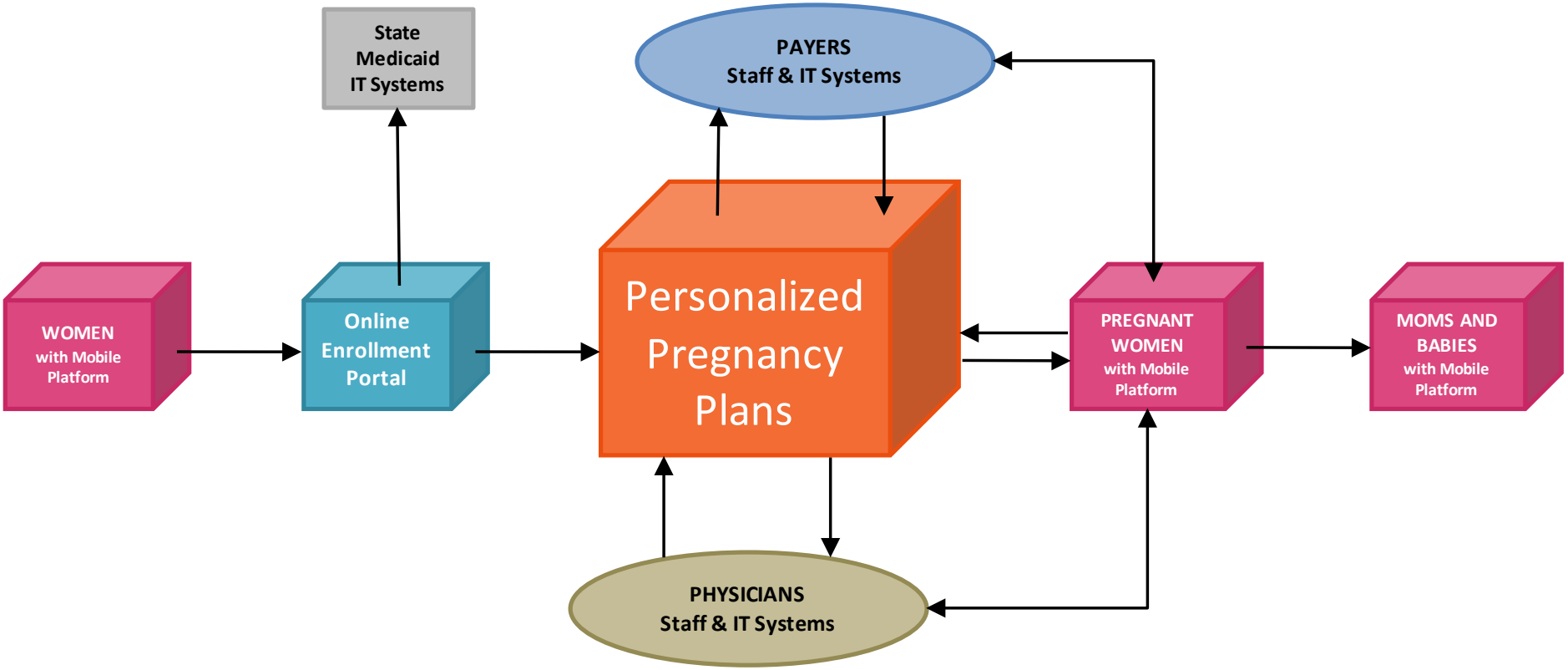


- 120,000 maternal deaths annually
- Another 60,000 “near misses”
- Obesity, diabetes, hypertension and other pre-existing health conditions
- Lack of access to care

What needs to be done? Why Lucina?

- Improved optics over the entire pregnancy care process
- Integration of data between the patient, payer, and provider
- Early identification and management of high risk factors
- Clinical algorithms that provide validated choices to improve health and reduce risks
- Analytics that drives the ability to proactively evaluate and take action within certain groups to reduce risks prior to pregnancy
- Cooperation of providers, payers, patients and others to focus on preventative care through comparative effectiveness & meaningful use

Best in Class Pregnancy and Newborn Care



Patient Centered, Protocol Driven, Outcome Based

Thank You!

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President & CEO
Lucina Health
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Listen to your data and find your edge.

Frank Frigo

September 29, 2015

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Edj Analytics uses a game-based approach to solve difficult problems across a variety of industries.

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What is a game-based approach?

The Data

What is the accessible information, and how is it changing in real time?

The Rules

What are the constraints of the decision making process?

The Goal

Is there a clearly defined objective?

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CHF Readmission Model

- Composed of EMR and Medicare claims data
- Readmission scoring as a function of ACA criteria
- Identification at discharge of highest risk patients for 30 day readmission
- Successful completion of phase 1 on hospital specific patient data
- Phase 2 will train and validate on additional hospital sets
- Real-time user interface in development

Broader Readmission Platform

- Expansion of CHF Readmission model framework
- Application to other performance based readmission per ACA
- Economies of common EMR and claims data
- Multi dependent (readmission) variable risk assessments

Decision Support in Healthcare

- Game-based risk assessments of medical interventions
- Incorporation of peer reviewed outcome data
- Multiple dependent risk metrics
- Utility based comparative effectiveness scoring
- Objective and defensible decision support for caregivers and patients

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