

Mercy Telehealth: An Overview

July 2013

MERCY HEALTH SYSTEM

HOSPITALS & AMBULATORY SITES

- 28 acute care hospitals
- 4 managed hospitals
- 4 heart hospitals
- 2 children's hospitals
- 2 rehab hospitals
- 1 long-term acute care hospital

AMBULATORY SITES

- 673 physician practices
- 9 outpatient surgery centers
- 14 urgent care sites
- 21 convenient care centers

MEDICAL STAFF & CO-WORKERS

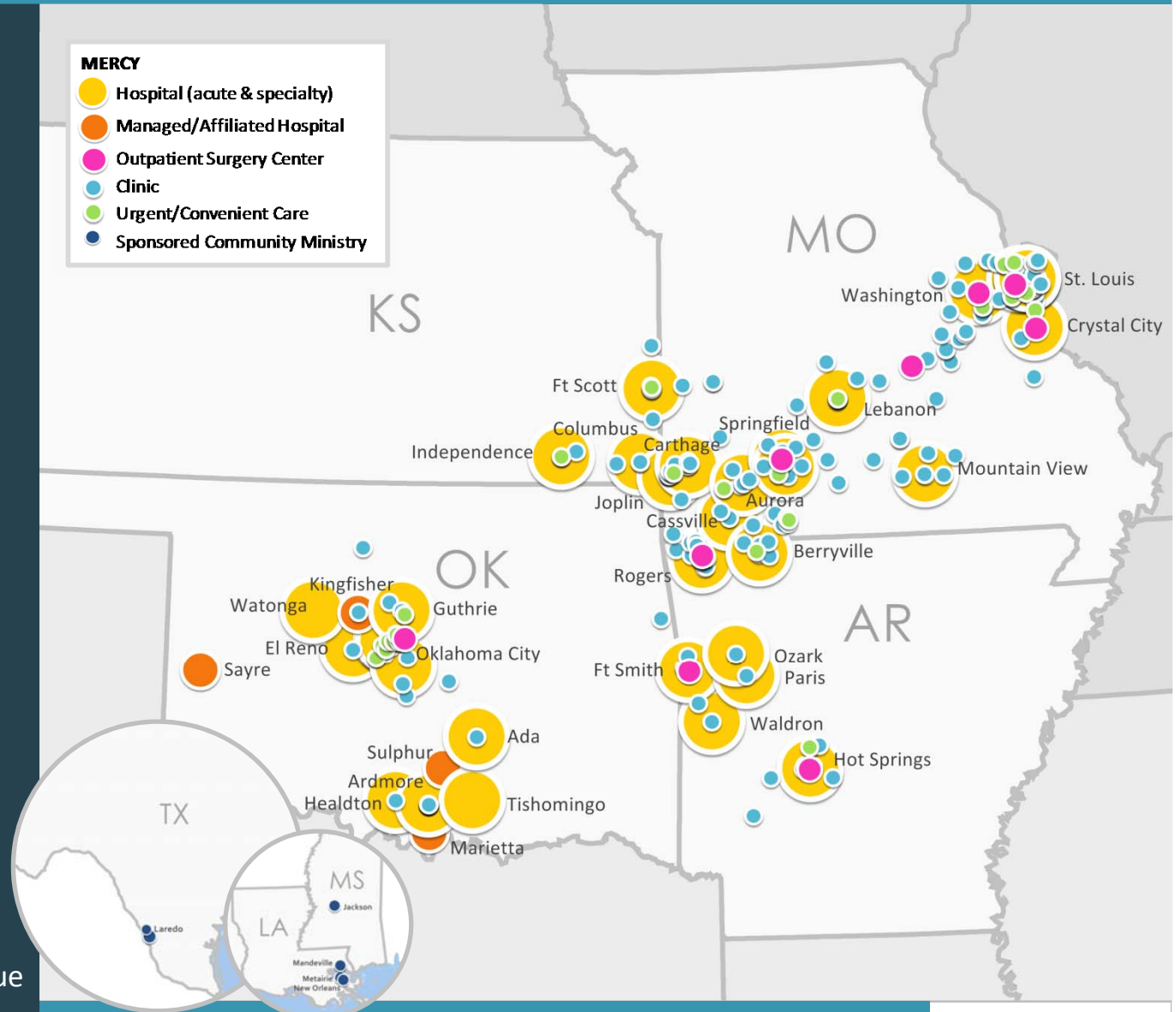
- 39,000 co-workers
- 1,960 integrated physicians
- 700 advanced practitioners
- 5,320 active medical staff

UTILIZATION

- 4,235 staffed beds
- 174,596 inpatient discharges
- 2,976,598 outpatient visits
- 4,894,162 physician office visits
- 663,400 ED visits

FINANCIAL INFORMATION

- \$4.6 billion total operating revenue
- \$5.2 billion total assets
- \$240 million in charity care



Mercy is the 7th largest Catholic Health System in the US (31st overall) based on Net Patient Service Revenue, serving in over 140 communities and seven states.

Source: Modern Healthcare Survey, June 2013

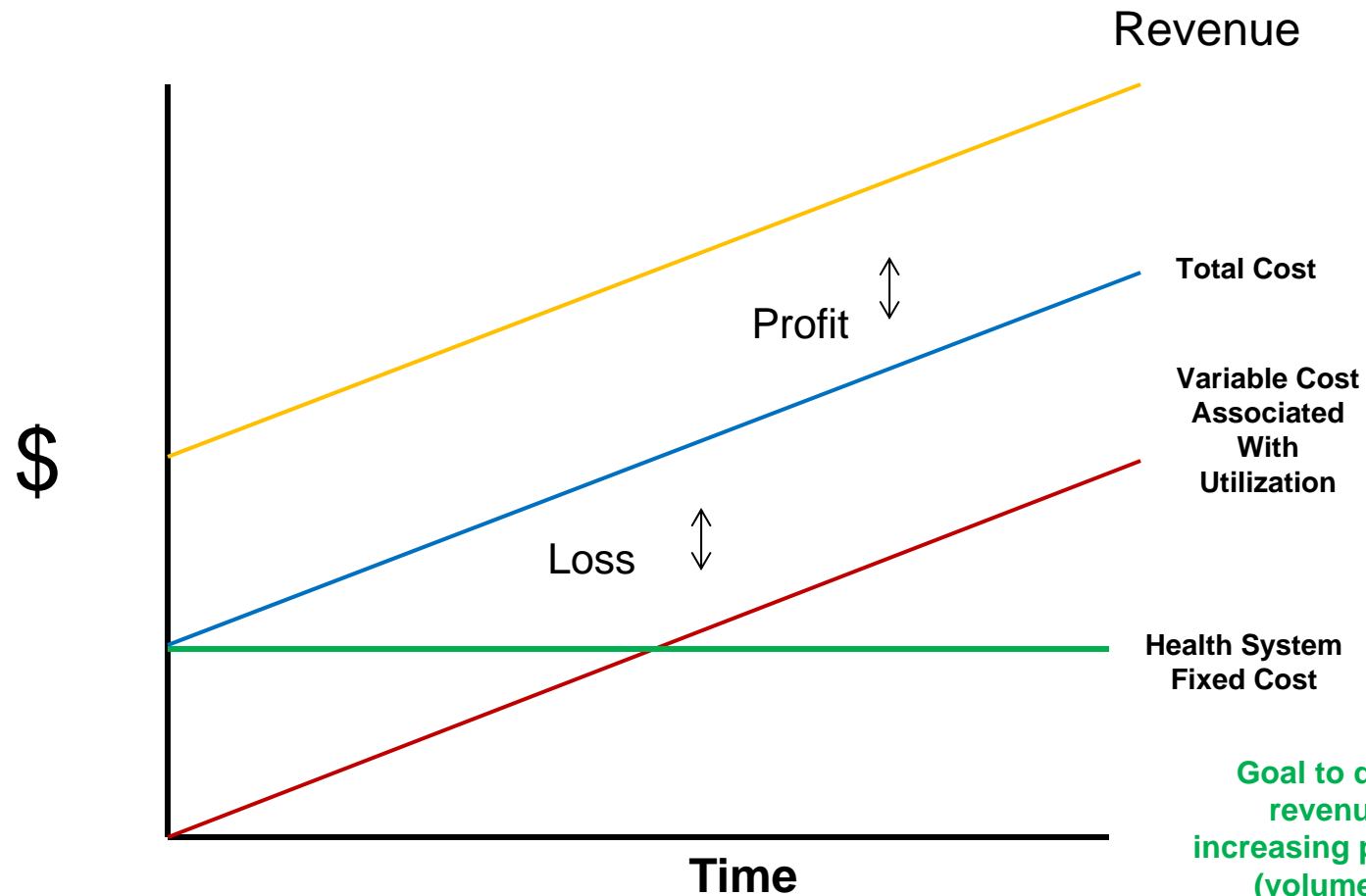


Mercy's assumptions for the future of health care within the United States

- There is not enough money to continue to deliver care in the traditional fashion. There needs to be and will be a fundamental change in financing healthcare or care will be rationed with a widening gap between the rich and poor.
- There will not be enough providers (primary care or specialists) to service the population. The population is aging and chronic diseases are continuing to grow.
- Mercy can no longer support its mission based on revenue from Hospital Operations.
- ROI cannot be determined based on an episodic disease approach (service line approach), future financial decisions will be based on PMPM cost and population management revenue models which means that systems will be judged based on how they manage the whole patient and populations.
- Health care of the future will by necessity become a collaboration amongst like-minded healthcare providers/systems
- Facilities (hospitals) will no longer be revenue producers, but will be cost centers – managing care delivery and wellness will be the coin of the realm
- Cultural Disparity > than 20% of the U.S. don't use English as their Primary language

WHAT GOT US IN THIS MESS?

Goal to drive up charges
and Utilization to
maximize profits

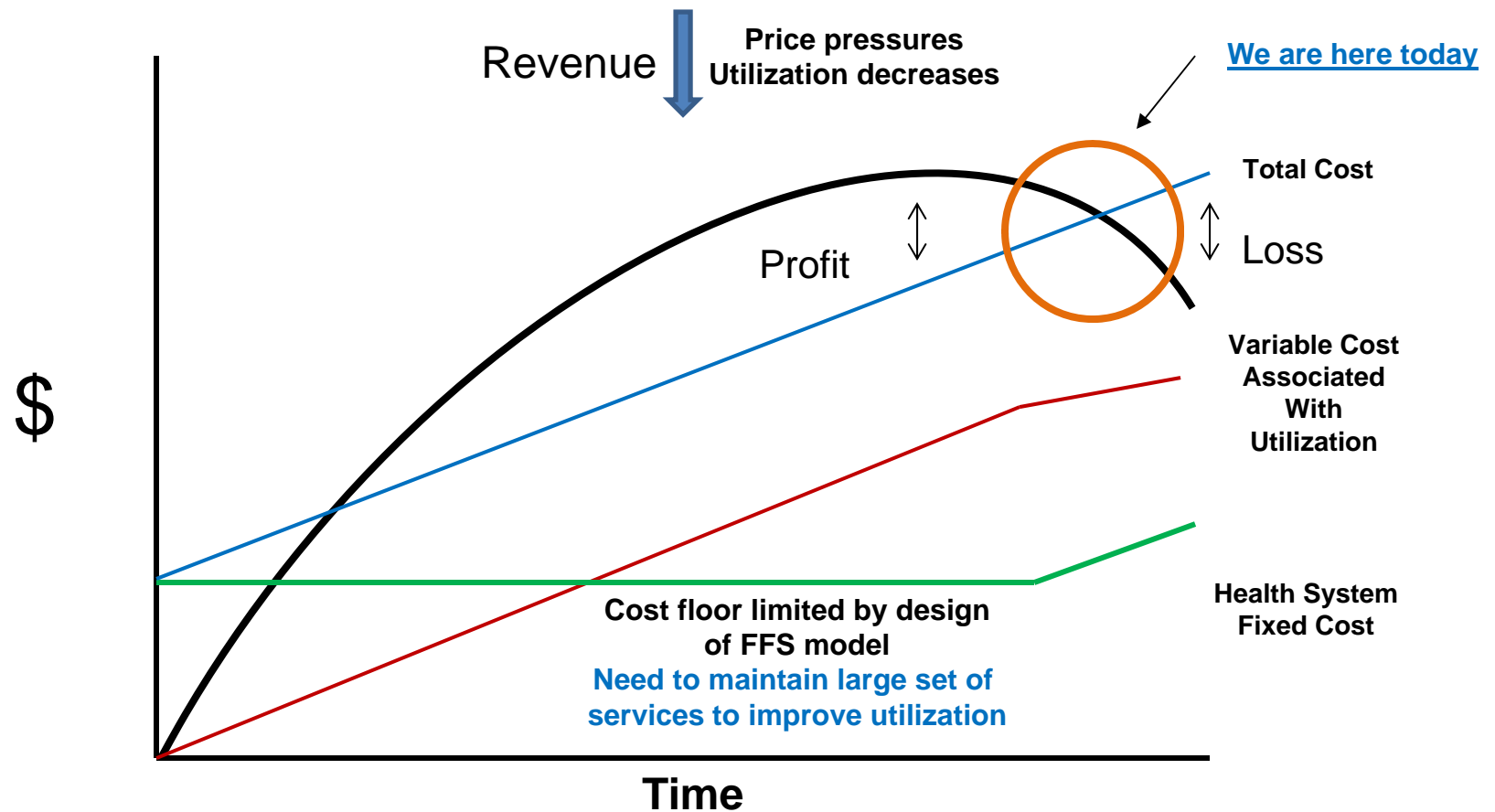


Goal to drive up
revenue by
increasing population
(volume) and
increasing utilization

Fee for Service
payment paradigm

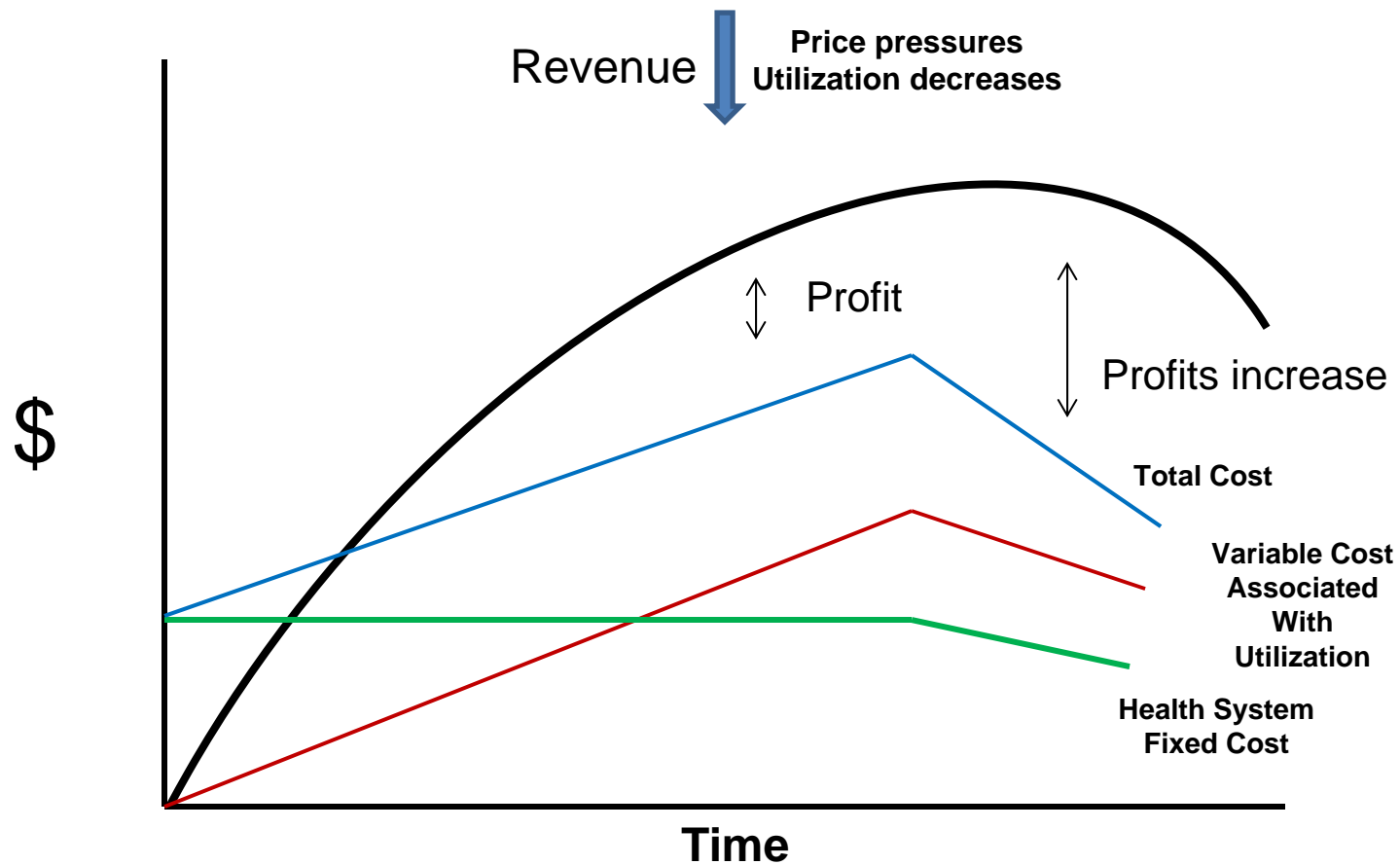
The Dynamics Has Changed

Goal to drive down cost
maximizing profits in
decreased revenue
environment



Fee for Service
Today

Population Managment Tomorrow



Overall Healthcare costs decrease
Utilization decreases
Rationalization of Fixed costs

Healthcare financing is changing

So is the Care Model !!

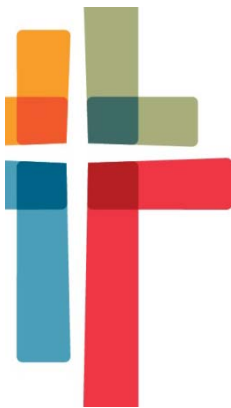
- **Feed the beast – financial success is based on utilization**
 - The more you do the more you make
- **Grow the village – population management**
 - Keeping people well becomes the goal – keep people out of the hospital, in their communities and in their homes.
 - Access – spaces, places, hours and venues of care and a myriad of caregivers
 - Primary care and specialty care
 - Coordinated care- which requires seamless information and a coordinated delivery model – EHR, collaboration and no gaps
 - The EHR makes care delivery harder on the physicians
 - Need to build an infrastructure around the asset – the physician

What is happening in the United States

- Affordable Care Act – March 2010
 - Set up Accountable Care Organizations
 - Changing payment methodology to reward population management and quality care
 - Meaningful use – incentives to move providers to use Electronic Health Records
 - Providing insurance for all – insurance exchanges
- Consolidation of provider base
- Large corporations are moving into the provider space
 - United Health Care – through Optum
 - Wal-Mart

Mercy's response to the challenges of the Healthcare crisis

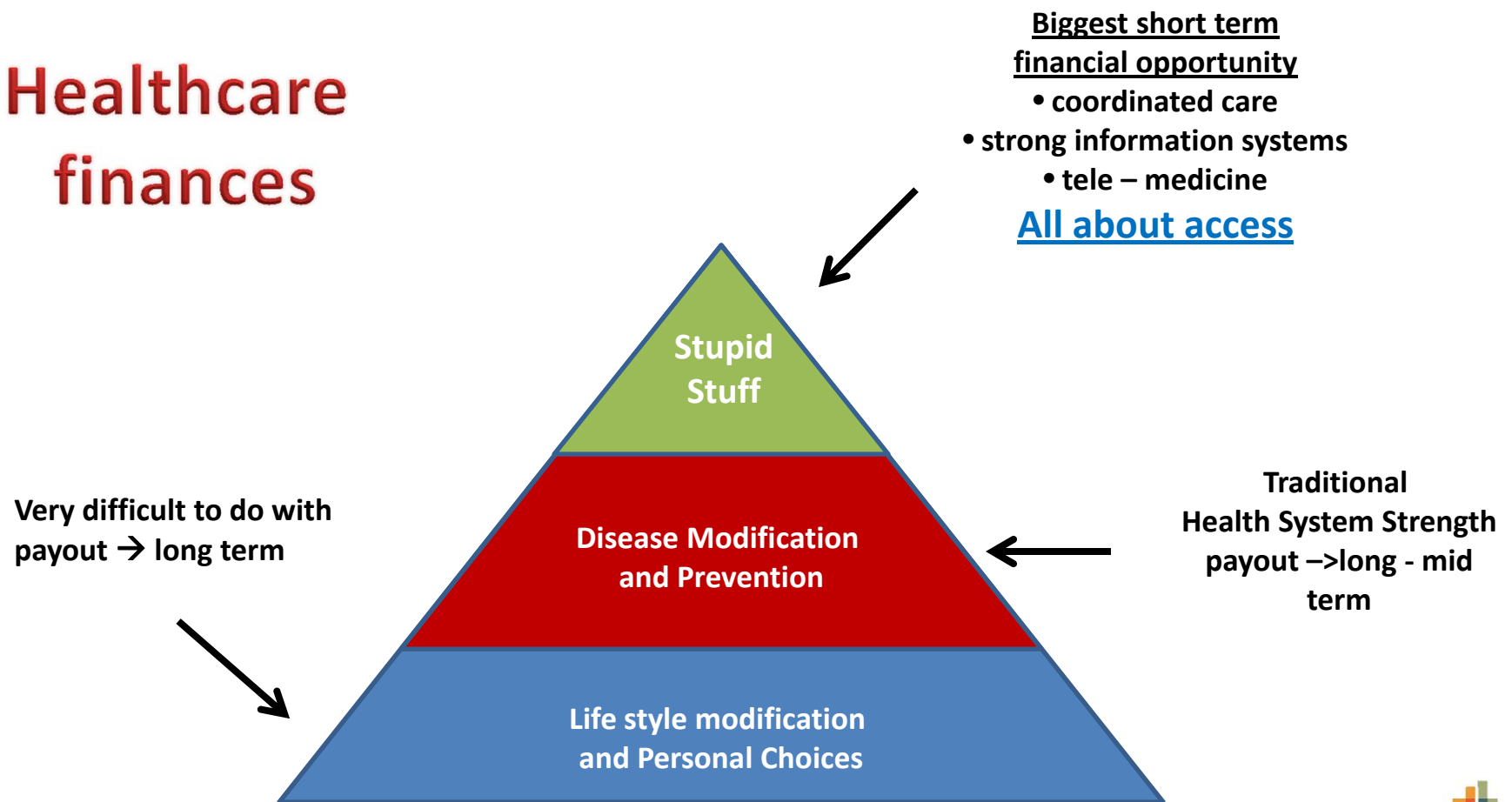
- Access (timely)
- Efficient
- Effective
- Equitable
- Safe
- Patient Centered



- **Statement of intent**
 - Proactively shape our future
 - Change our model of care
 - Integrate/partner with physician
 - Invest in information technology and tele-health
- **Care without borders**
 - Utilize technology to remove cultural barriers and geographic boundaries to care delivery
- **Team based care**
 - Medical home concepts
 - Physical
 - Virtual
 - Cultural
- **Coordinate care and make it patient centric**
 - Centralized disease management
 - Care on demand – 24/7
 - Delivery at multiple venues
- **Leadership**
 - Bring physicians into non traditional administrative and partnering roles
- **Establish the Center for Innovative Care**
 - Utilize Innovative approaches to care delivery, access and care process in order to maximize the clinical resources of the health system over a larger population

What has Mercy learned with its integrated care model?

Healthcare finances



Clinical Observations

- Increased Access to care decreases utilization and improves health – Mercy initiatives:
 - Extensions of primary care
 - Schools
 - Community
 - Homes for aged – SNF, Assisted living
 - Technology
 - E-medicine
 - Home monitoring
 - Virtual care
 - Virtual remote interpretation
- Coordinated care decreases utilization and improves health
 - Case and disease management
 - Culture of team care centered around the patient – “it takes a village”
- Treating the patients well-being decreases utilization and improves health
 - Partnership with Healthways

Center for Innovative Care

- A group of Mercy Leaders who are charged with making healthcare better and easier
- Using innovative thinking to leverage technology, people and process to facilitate the design of the Mercy “New Model of Care”.
 - Increase Access without adding “bricks and mortar”
 - Coordinated Care – leverage the ability to share clinical information through the use of the EHR
 - Patient Centered Care Delivery – a paradigm shift from previous models of care
 - Efficient, Effective and Equitable
- We are designing the future and implementing it today through
 - Tele health
 - Medical Homes/Team Care
 - Bringing Mercy to communities and keeping the care delivery in local communities

Tele-Health

The Delivery of health-related services and information via telecommunications technologies.

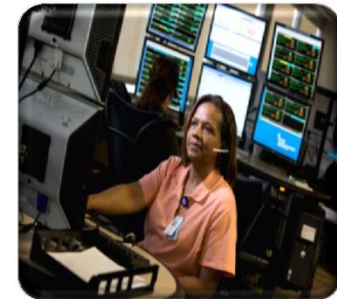
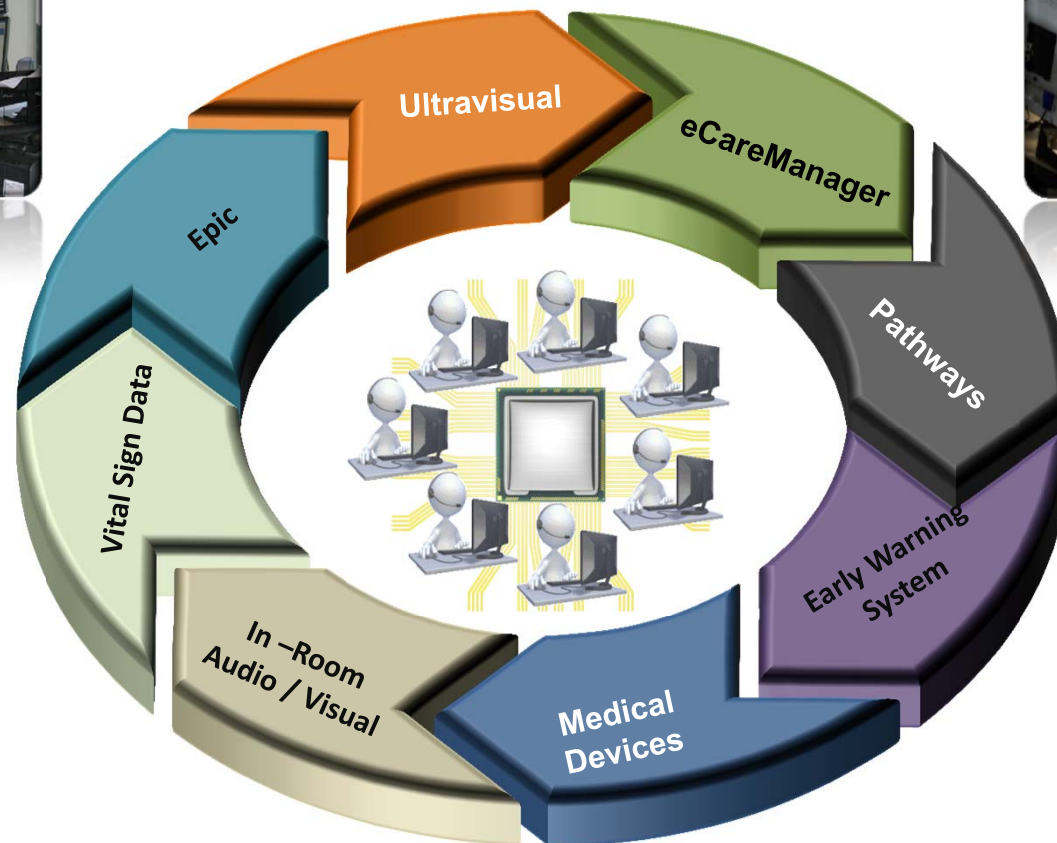
- Telephone
 - Remote video
 - Stationary devices
 - Mobile devices
 - E-medicine
 - E-mail
 - Face Book
 - Twitter
 - Virtual Care
 - Avatars
 - Robotic Surgery
 - Holograms
- Centralized Monitoring
 - Decentralized Consultative
 - Store and Forward
 - Collaborative Consultative
 - In the Hospital
 - Physician's office
 - Community location
 - In the Home
 - Synchronous
 - Asynchronous

CENTRALIZED HUB

Group of subject matter experts in one room, monitoring a large group of patients, using real-time data feeds and 2-way audio/video

PROVEN MODEL:

Tele-ICU
Tele – SNF
Tele – Sepsis
Tele - Hospitalists

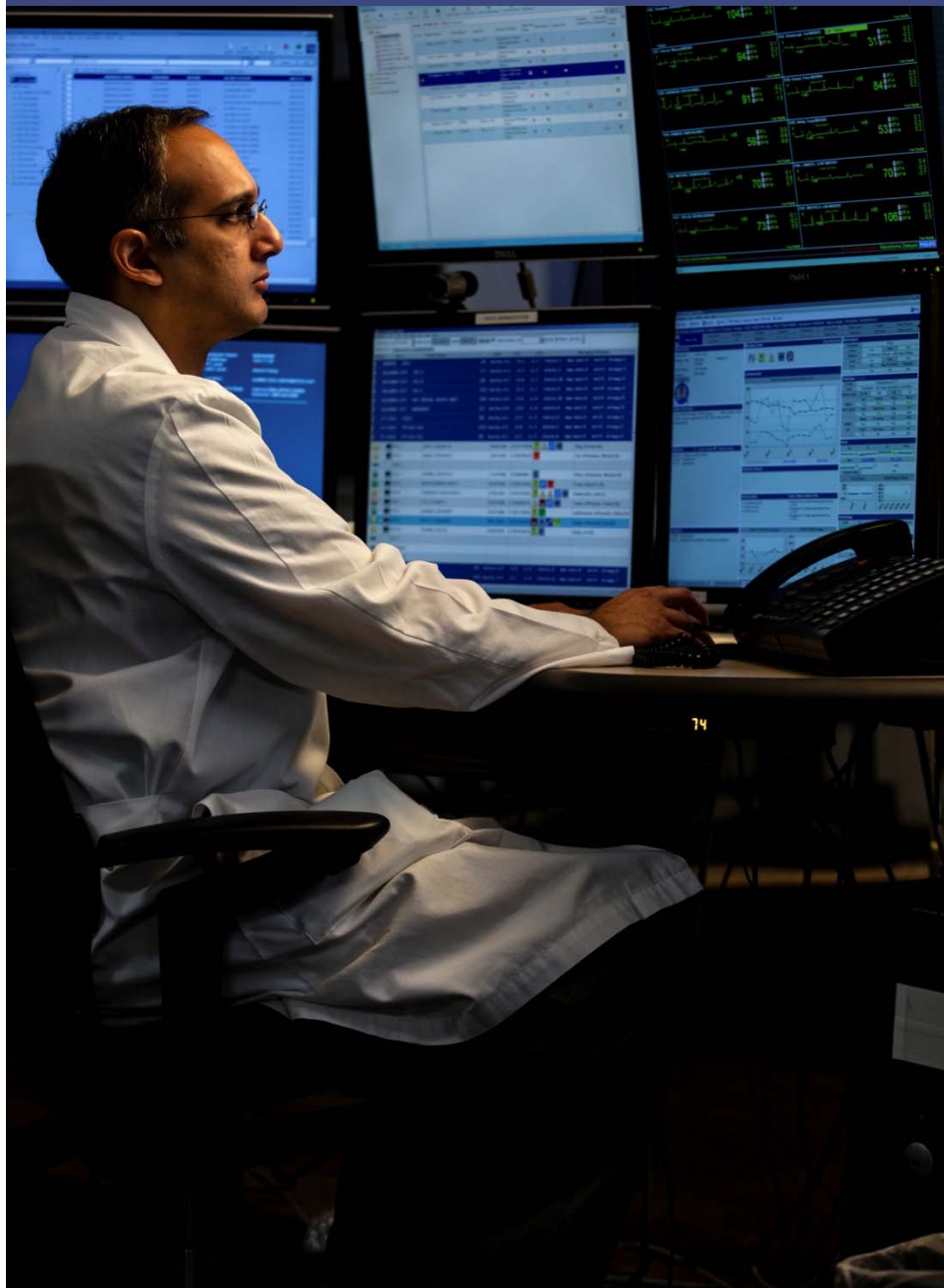


MERCY SAFEWATCH Tele-ICU



- **Largest single-hub electronic intensive care unit (Tele-ICU) with two production environment**
- **450+ monitored beds in 15 hospitals across 5 states**
- **Support 28 ICUs, 2 step-down units and 1 LTACH**
- **Inception: September 2006**
- **Located on the campus of Mercy Hospital St. Louis**

MERCY SAFEWATCH Implementations



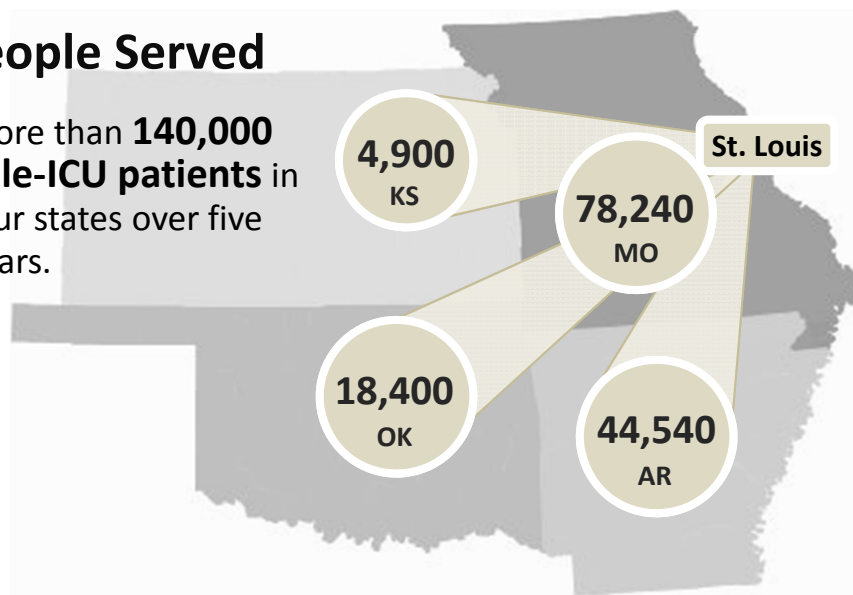
- **15 Tele-ICU Implementations**
 - » 120 days from start to go-live
- **9 Tele-Stroke Implementations**
 - » 4 weeks from start to go-live

Site	Beds	Implementation Date
Oklahoma City, OK	36	September-06
Ardmore, OK	13	September-06
Ft. Scott, KS	10	November-06
Independence, KS	8	November-06
Washington, MO	13	December-06
Rogers, AR	24	January-07
Ft. Smith, AR	38	March-07
Hot Springs, AR	25	April-07
St. Louis, MO	144	September-07
Springfield, MO	94	March-08
Mountain Home, AR	17	December-09
St. Louis, MO (LTACH)	6	December-10
Lebanon, MO	8	November-11
Joplin	18	May -12
Self Regional	31	August ¹⁶ -13

MERCY SAFEWATCH Improving Delivery

People Served

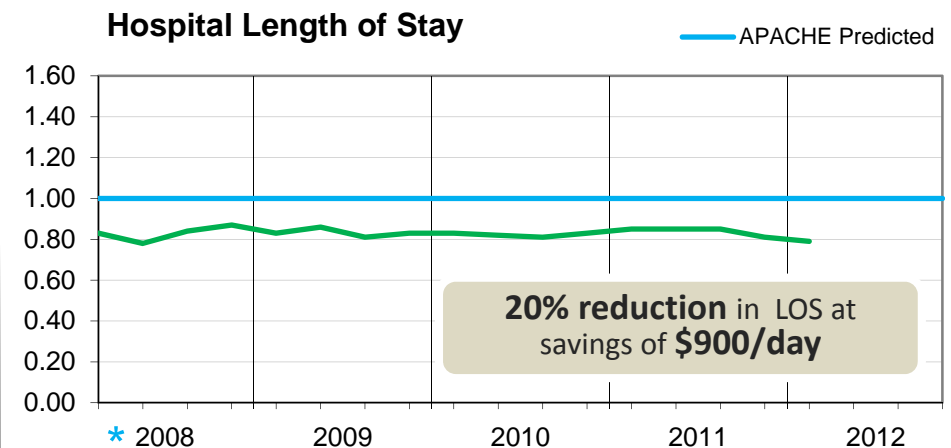
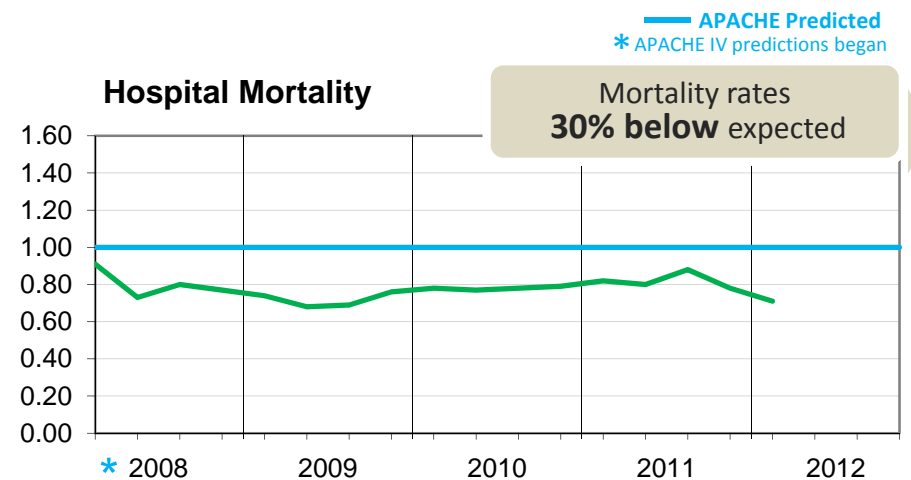
More than **140,000 Tele-ICU patients** in four states over five years.



Clinical Trends that impact cost [4 states]

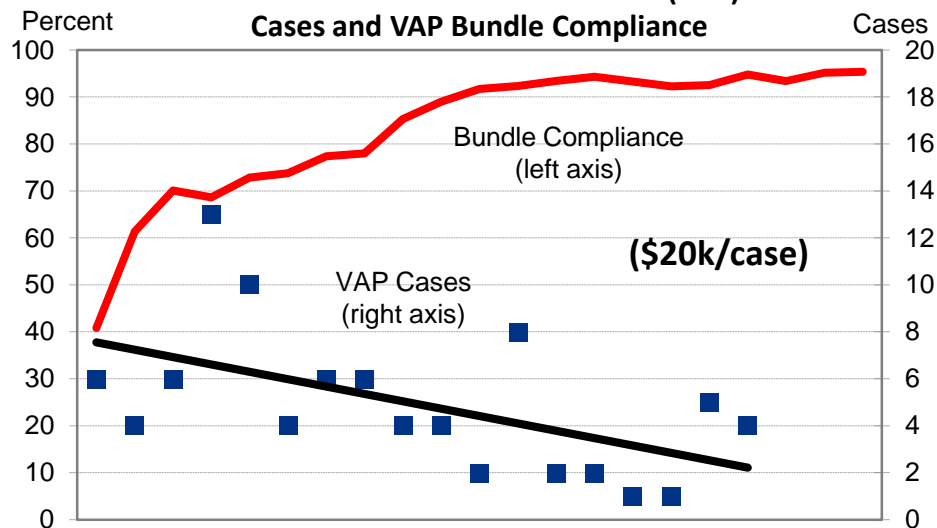
Mercy is saving approximately \$25 million annually by reducing length of stay.

>1,500 patients have gone home that weren't expected to.



Performance Improvement

Ventilator Associated Pneumonia (VAP) Cases and VAP Bundle Compliance



IMPROVING DELIVERY - RESULTS

NON-MERCY HOSPITAL – PRE / POST EICU IMPLEMENTATION

APACHE Summary Actual : Predicted Ratios

NON-MERCY ICU	APACHE SCORE	Actual to Predicted Ratios			
		ICU MORTALITY	ICU LOS	HOSPITAL MORTALITY	HOSPITAL LOS
Pre (Q4 2008 - Q3 2009)	49.7	1.45	1.00	0.93	0.68
Post (Q4 2009 - Q3 2010)	50.1	0.62	0.72	0.71	0.64

Shown in the table above are the actual to predicted ratios comparing pre and post implementation results. All showed improvement post implementation.

Healthcare Providers (physicians, advance practice nurse, dietician, pharmacist, wound nurse, etc.)

Healthcare
Provider's
Home

Office

Anywhere

DECENTRALIZED

**MERCY
INFRASTRUCTURE**

eConsult:

A telemedicine consultation that occurs
between a healthcare provider and a patient /
client

Clinic, School,
Work, Retail

Hospital, LTACH,
Rehab,
Nursing Home

Patient Home

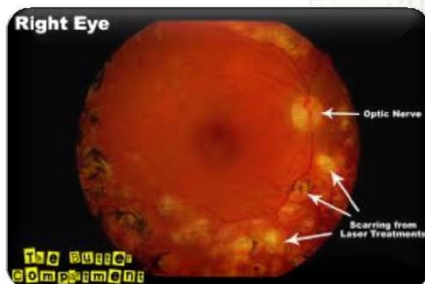
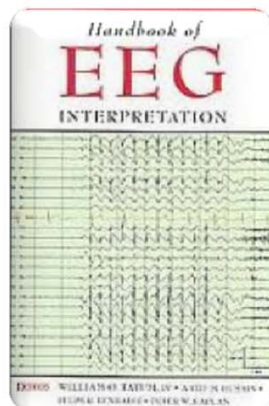
Patient / Community

Mercy

Decentralized/consultative

- Utilize auscultative, auditory and visual tools including diagnostic ultrasound to augment the experience
- Availability of real time clinical information through the EHR
- Remote event is staged using a healthcare associate
- Conference in more than one specialists from multiple locations
- Bring the physician to the patient instead of the reverse.
 - SNF's and post acute care
 - Improved access for the elderly
 - Rural and inner city patients benefit the most.

STORE AND FORWARD



- Image sharing, reading, storage only
- Radiologic images
- Current Mercy Programs
 - 2D Echoes
 - Prenatal Ultrasounds
 - EEGs
 - EKG's
 - Retinal Scans
 - Sleep Studies

Collaboration

- Utilize subspecialty expertise from Universities and centers of excellence for consultative events
 - Administer protocol driven treatments with tele-medicine follow-up by world renowned centers of excellence for Cancer, Cardiac and Infectious Disease
 - Establish central surgical centers of excellence with tele-health follow-up after the patient has returned to their community
- Establish a rational approach to specialty utilization – halt the arms race.
- Develop a worldwide approach
- Benefit from economies of scale

What does it take?

- Infrastructure to support the four models of tele-health delivery.
 - Economies of scale and physician resources dictate collaboration between health systems and countries.
 - Physician/nurse unit can monitor 150 ICU beds and 300 hospital beds
- EHR
 - Readily available clinical information is a necessity
 - Be aware that it makes the physicians job harder – need to build infrastructure around the physicians to support – i.e. Medical Homes
- Need to build the infrastructure to provide patient care 24/7
 - Nurse on call – telephone, e-medicine, video interaction on fixed and mobile devices
- Requires a different model of care
 - Team care
 - Collaborative approach – between physicians - specialists and health systems
 - Innovation (change) – think out of the box
- Requires collaboration between traditionally separate entities

Opportunities

- Increased Access to care
 - Singapore has an aging population that will put stress on the present access model.
 - Decreased costs require 24/7 support – chronic disease monitoring,
- Improved efficiencies for providers
 - Fills gaps in care created secondary to decreased access to supportive care i.e. speech and physical therapy, case and care management, palliative care
 - Allows physicians to manage a larger population of patients and an increased severity of illness
 - Rationalizes specialty care and specialty care delivery
- Virtual Concierge's medicine for all with improved service and access
- Collaborations with specialties outside of Singapore – Duke and John Hopkins
- Medical Tourism opportunities with tele-health follow-up
 - Mercy Springfield does all of the spine operations for Wall-Mart with tele-health follow-up
 - Singapore did more than 800,000 procedures on non-residents
- Exporting Singapore's medical expertise to the rest of Southeast Asia, India ... China

Dangers and Barriers in the United States

- Tele-health is an augmentation to care delivery and does not replace the relationship that is foundational to care delivery.
- Economics – need to move rapidly from a utilization model of financing to a population management payment methodologies.
 - Takes change – somebody loses
- We are using our grandchildren's technology to care for our patients under the laws and regulations of our grandparents.
 - 50 different licensing boards
 - Thousands of credentialing committees
- The physician has to come off the “pedestal” – team care is essential, patient centricity is essential and access is an absolute.
- Boards and Healthcare leaders need to understand that we are not feeding the beast any more it is all about growing the village.
- It takes change – nobody likes to change



Physicians love Change 😊

Springfield Health System
\$1,000,000,000 → revenue

Patient population mix
Medicare – 41,790 (20 %)
Commercial – 208,951 (80%)

Gain share	Facility Revenue Impact all business	Revenue Gap	New Lives to replace lost revenue 22,431
\$30,882,435	(\$84,850,733)	(\$53,968,298)	Medicare → 4,486
<u>Medicare only</u> ↘	(\$35,629,535)		Commercial -> 17,945

For every 100 PCP each PCP will need to increase their visits by 600 per year
Which would account for 2.7 visits per day

**Inexpensive growth can be accomplished through the use of Advanced Practitioners
and tele-health**

Aligned hospitalist program;
Disease management utilizing a patient registry,
Embedded care coordinators and disease management programs;
Primary care population management;
Increased access using team care and extended
primary care office hours;
E-medicine including e-visits;
E-consults and virtual consults;
Urgent care centers;
Aligned PCP compensation model;
Matured PCP-driven group practice;
Fully integrated PCP network of 400 PCP's;
24/7 nurse hotline.



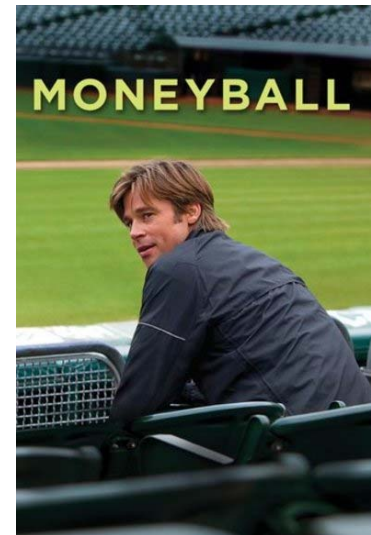
Milliman's assessment of the
Impact of these utilization changes
Medicare - 8.25%
Commercial - 9.63%



Data

A Data Strategy is imperative to succeed in with the new care delivery models

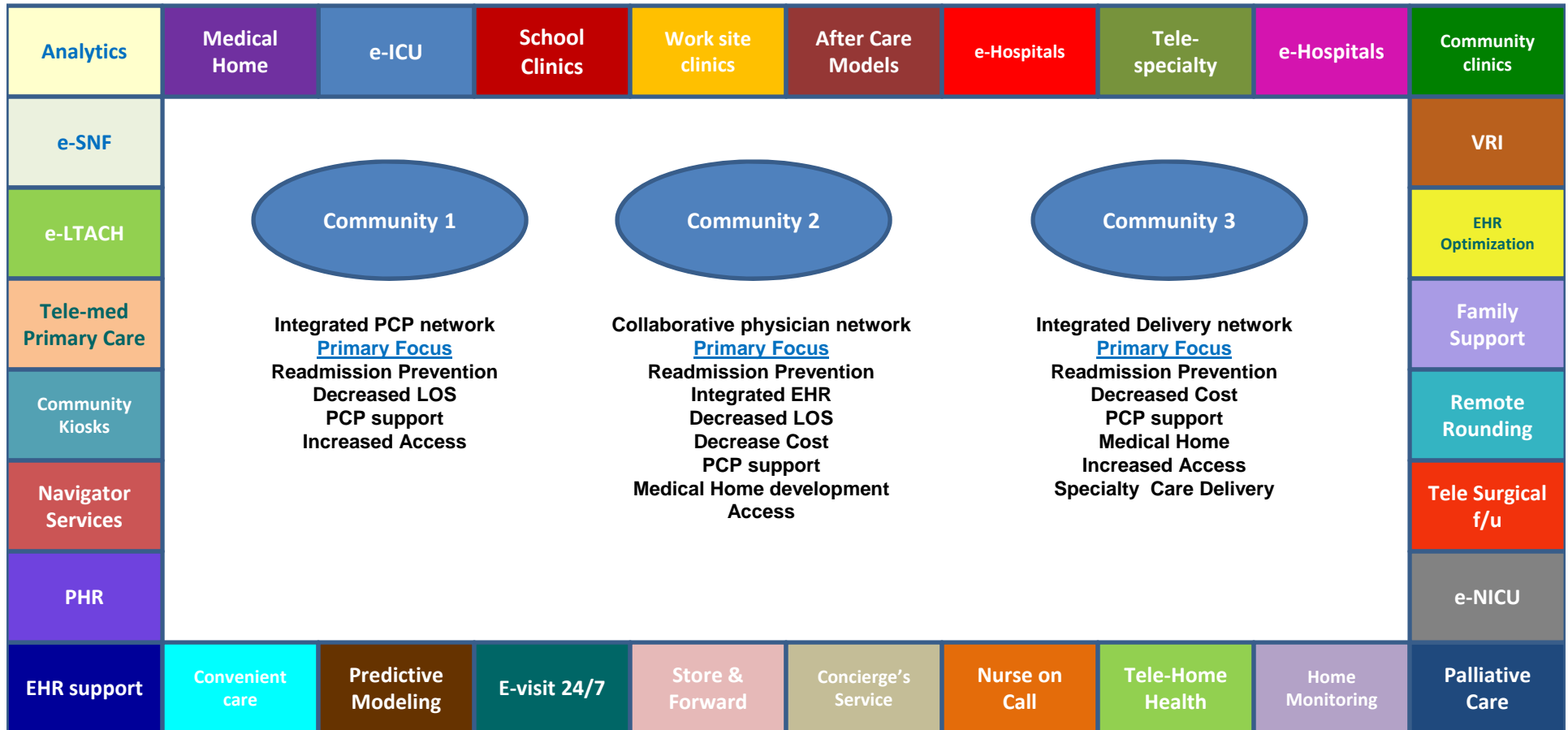
- Use of Big Data strategies to develop
 - Descriptive analytics
 - Prescriptive analytics
 - Predictive analytics
- Use of Data will help you innovate
- It has to be deliberate – data integrity is not a natural process
- There are “money ball” opportunities to be found.
 - Sepsis – heart rate and respiratory rate
 - Cardiac monitoring – Oklahoma heart hospital



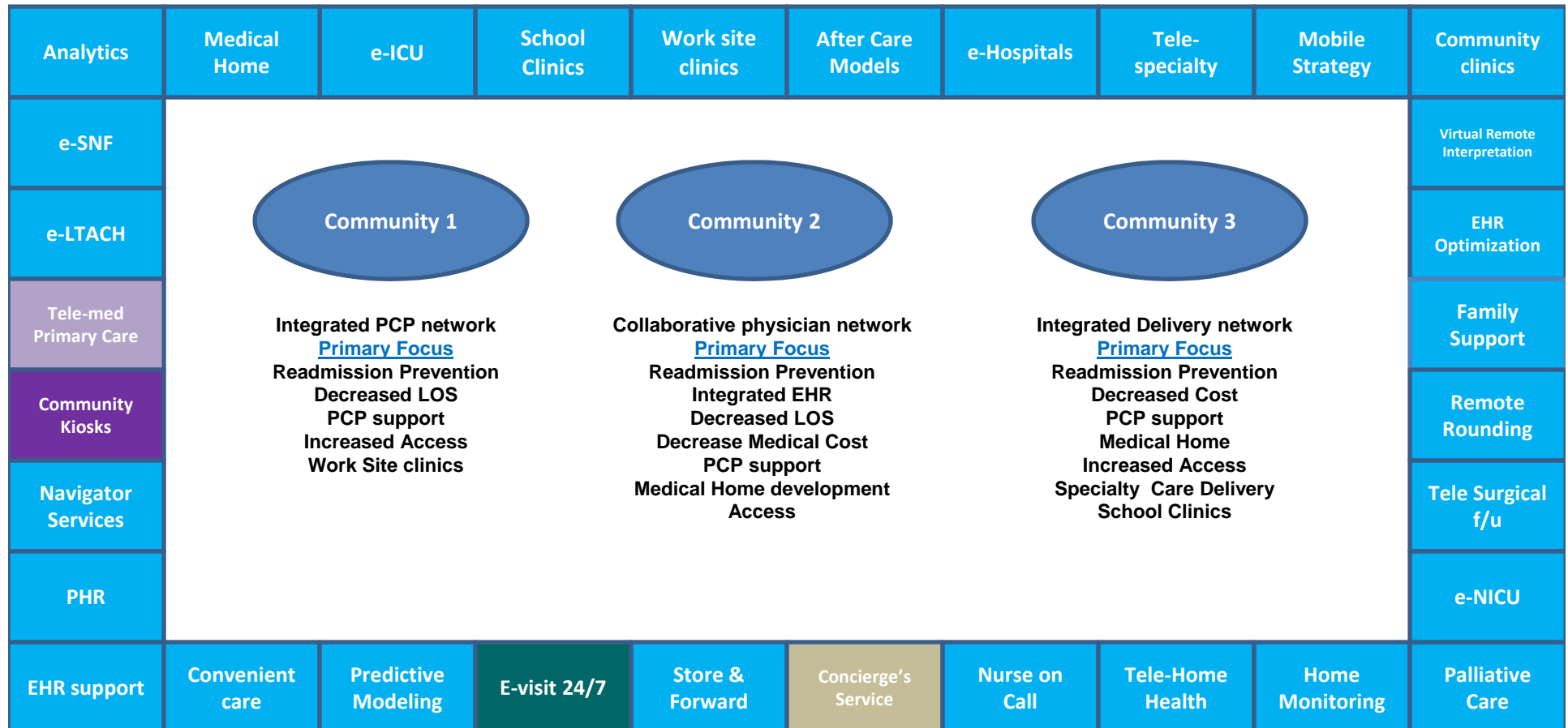
What does the future hold for tele-medicine?

- Remote surgery
 - Robotic assistance with use of holograms
 - Bloodless surgery – ultrasound therapy
- Hospital @ home
- Smart phone become diagnostic tools
- Continuous monitoring of chronic diseases with seamless transition between home and hospital – EKG chair
- Home visits through tele-health
 - Family conferences
 - Specialty conferences
- Collaborations and consolidations amongst health systems and countries
 - Sharing specialty expertise
 - Keeping patients in their communities
 - Global approach to care delivery
- Healthcare financing changes – pay for value – concierge model of care for all
 - Prevention rather than intervention
 - Access to care is 24/7
- Predictive modeling begins to dictate care models creating prospective based prevention
- Gene mapping develops specific treatment plans for disease classes that were once thought to be ubiquitous.

Virtual Care Services 24/7 mindset

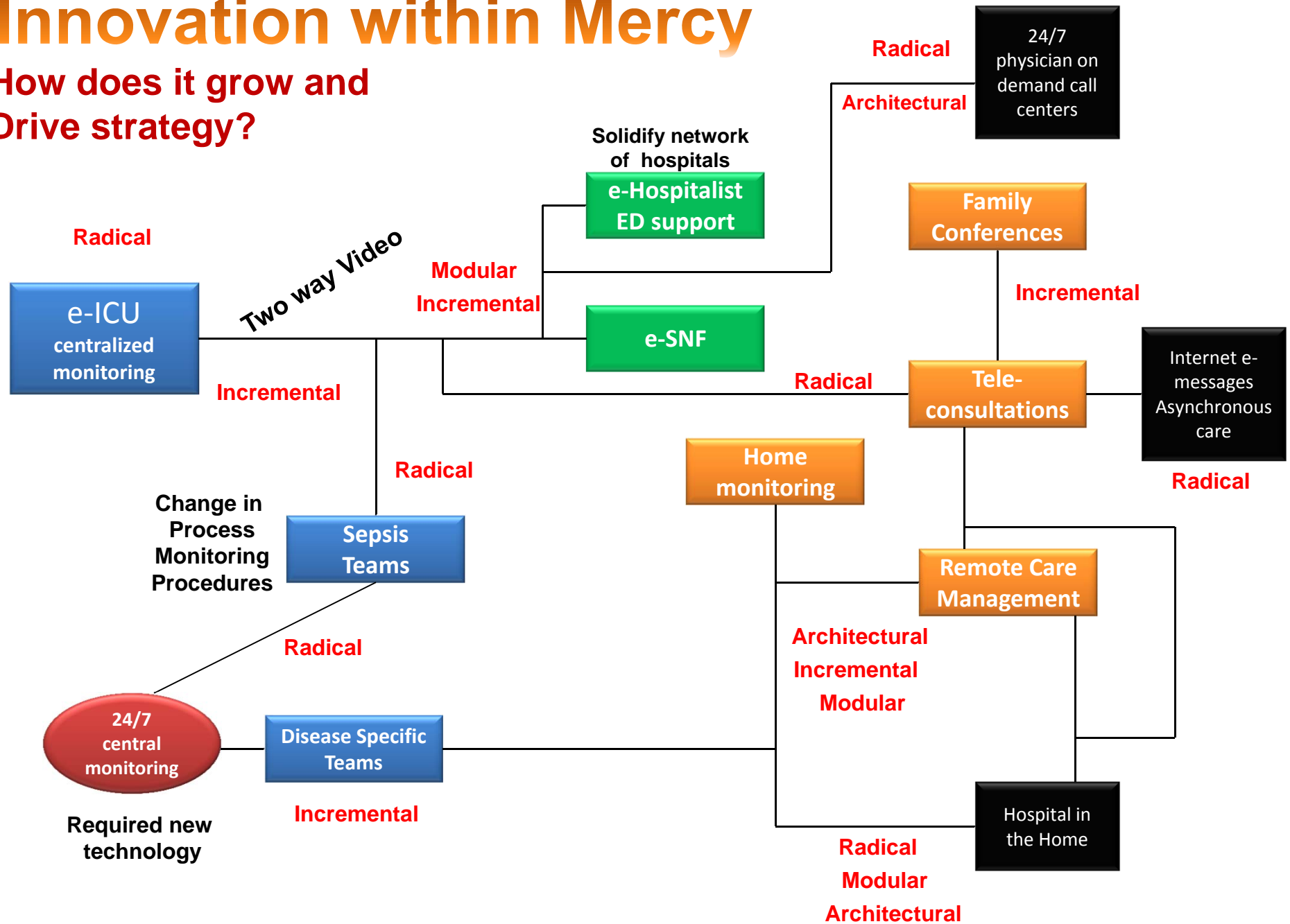


Virtual Care Services – Mercy’s Capabilities →



Innovation within Mercy

How does it grow and
Drive strategy?



Mercy Virtual Care Center

