Where, How, and by Whom Care Will Be Delivered Across an Integrated Network

Innovations, Collaborative Teams, and the Affordable Care Act: It’s a Whole New World

Roger Spoelman
Regional President and CEO
Mercy Health

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Liminality

*In anthropology, liminality is the quality of ambiguity or disorientation that occurs in the middle stage of rituals, when participants no longer hold their pre-ritual status, but have not yet begun the transition to the status they will hold when the ritual is complete.*
Why are we swinging back and forth?
Healthcare Spending: Unsustainable Economic Trends

“Bundled payments, ACOs, and medical homes can reduce cost levels, but not the overall growth rate…

Medicare spending will grow faster than projected …

The Trust Fund will be insolvent by 2026… and Congress won’t be able to avoid changing course.”

~Richard S. Foster, Chief Actuary for CMS (Ret.)
February 28, 2012
Healthcare Spending

17.9% of GDP in the U.S. in 2012
Compared to 12.6% OECD Average
and 10.2% for the World
Crucial Conversations

The Government Sends a Message to the Nation’s Healthcare Providers → ACA

The ‘good ol’ days’ in healthcare were not so good – where’s the VALUE?

• 40 million uninsured (soon to be 30M)
• Since 2012, one health system charged 900 uninsured patients $26+M in trauma fees
• 22% of the insured population delayed medical treatment due to cost
• ~12 million U.S. adults receive a wrong diagnosis in outpatient facilities
• Each year 210,000 - 440,000 Americans die from preventable medical errors in hospitals
• Tens of thousands of patients received unnecessary tests and procedures ($2-8B)
• Physicians were forced to practice defensive medicine to avoid frivolous lawsuits

Current system cannot be relied upon as arbiters of quality or affordability.
WHAT IS DIFFERENT?
First Curve to Second Curve Markets

**Volume-Based First Curve**
- Fee-for-service reimbursement
- High quality not rewarded
- No shared financial risk
- Acute inpatient hospital focus
- IT investment incentives not seen by hospital
- Stand-alone care systems can thrive
- Regulatory actions impede hospital-physician collaboration

**Value-Based Second Curve**
- Payment rewards population value: quality and efficiency
- Quality impacts reimbursement
- Partnerships with shared risk
- Increased patient severity
- IT utilization essential for population health management
- Scale increases in importance
- Realigned incentives, encouraged coordination

THE GAP
How are we making the Jump?

Clinically Integrated Network (CIN)

Fee-for-service

Value-based payment
Talk to Your Broker Lately?

Customer No Longer Reliant on Established Professional

Unpacking the Broker’s Role

- Provides access to industry information
- Owns the primary relationship with the customer
- Acts as gatekeeper to more complex financial services
- Charges per interaction

Source: Health Care Advisory Board interviews and analysis.
Paging Dr. Robot
Not Such a Farfetched Idea

Facing Unprecedented Competition

Disruptive Innovators Selling Solutions—Often Without Physicians

Source: Health Care Advisory Board interviews and analysis.
Confronting an Increasingly Sophisticated Competitor

Walgreens Entering the Care Coordination, Rapid Diagnostic Game

Overview of Walgreens’ Care Delivery Strategy

- **Medication Management**
  - Offering medication consults for complex drug regimens

- **Quality Improvement**
  - Having pharmacists check patient vitals

- **Healthcare Clinic**
  - Serving low-acuity care needs clinics

- **Care Coordination**
  - Supporting care coordination teams

Case in Brief: Walgreens

- Palo Alto-based technology company
- Developed a miniature medical device that quickly detects hundreds of diseases with a minute amount of blood
- Partnered with Walgreens in 2013; have opened Theranos Wellness Centers in Walgreens stores in Palo Alto and Phoenix
- Largest drugstore chain in the country based in Deerfield, Illinois
- Operates 370 in-store Healthcare Clinics staffed by NPs, PAs
- Establishing health system partnerships in order to improve care coordination, medication adherence, and quality metrics for patients

The New Primary Care Outlet for 130 Million People?

Walmart Testing Enhanced Primary Care Model to Replace Legacy Clinics

**Evolution of Model**

**Legacy Clinic**
- Low-severity illnesses
- Minor injuries
- Immunizations

**Expanded Primary Care Clinic**
- Chronic disease management
- Preventive and wellness services
- Specialist referrals
- Basic acute care

**Case in Brief: Walmart Care Clinic Pilot**
- Walmart piloting new primary care clinic staffed by two contracted NPs in Copperas Cove, TX
- Service offerings expand beyond traditional Walmart retail clinic to include chronic disease management, preventive and wellness services, and specialist referrals

**Low Price Guarantee in Primary Care**

- **$4.00**
  - Cost of a clinic visit for employees on Walmart’s health plan

- **$40.00**
  - Cost of a clinic visit for customers and non-covered associates

Source: Health Care Advisory Board interviews and analysis.
“The Wish”
But Continuing to Rely on Legacy Model
Health Systems Still Focusing on Physician Aggregation

<table>
<thead>
<tr>
<th>In-Network Providers</th>
<th>Family Medicine</th>
<th>Internal Medicine</th>
<th>Pediatrics</th>
<th>Geriatrics</th>
<th>Smith Health System</th>
<th>JonasCare Health</th>
<th>Baldwin Healthcare Services</th>
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Overcoming An Outdated Set of Design Assumptions

Today’s Network Built on Yesterday’s Motivations

The Key Assumptions Guiding Legacy Network Design

1. Physicians as patients’ health care agents
   Hospitals have positioned doctors as the primary customer, as they have traditionally served as the principal means of reaching the patient

2. Scarcity of physician talent
   Hospitals focus on aggregating physicians due to concern about lack of physician supply in markets

3. Limited set of competitors
   Hospitals typically only compete with other hospitals or physician-owned facilities for business

Source: Health Care Advisory Board interviews and analysis.
Result #1

Always Operating Under a Shortage Mindset

Health Systems Reaching the Limits of an Inefficient Care Model

Physician Shortage
Projected 2005-2025

Physician Shortage by Specialty
AAMC Projection for 2025

<table>
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<tr>
<th>Type of Physician</th>
<th>Projected Shortage</th>
<th>Percent of Total Shortage</th>
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<tbody>
<tr>
<td>General Primary Care</td>
<td>46,000</td>
<td>37.3%</td>
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<tr>
<td>Medical Specialties</td>
<td>8,000</td>
<td>6.3%</td>
</tr>
<tr>
<td>Surgery</td>
<td>41,000</td>
<td>32.9%</td>
</tr>
<tr>
<td>Other Patient Care</td>
<td>29,000</td>
<td>23.4%</td>
</tr>
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</table>

Operating an Overbuilt Workforce

Reductions in Demand Eventually Driving a Physician Surplus

Impact of Population Health on Specialist Demand

<table>
<thead>
<tr>
<th>Specialist</th>
<th>Change in Number of Physicians (Moderate Care Management)¹</th>
<th>Change in Number of Physicians (Aggressive Care Management)²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ophthalmologists</td>
<td>-22.3%</td>
<td>-44.5%</td>
</tr>
<tr>
<td>Non-invasive Cardiologists</td>
<td>-22.3%</td>
<td>-44.6%</td>
</tr>
<tr>
<td>Anesthesiologists</td>
<td>-17.3%</td>
<td>-34.5%</td>
</tr>
<tr>
<td>Diagnostic Radiologists</td>
<td>-20.7%</td>
<td>-41.4%</td>
</tr>
<tr>
<td>Dermatologists</td>
<td>-15.9%</td>
<td>-31.9%</td>
</tr>
</tbody>
</table>

“An Accelerating Trend Under Population Health

“You can see the challenge right? Better care management means fewer specialist appointments. These specialty services are our bread and butter—they drive most of our revenue—and without them I don’t know what comes next.”

Executive Large Multi-Specialty Medical Group

¹ Moderate refers to the shift in the number of physicians needed to manage care for 100,000 lives when utilization shifts from loosely managed care to moderately managed care, as defined by the Milliman benchmarks.
² Aggressive or well managed refers to the shift in the number of physicians needed to manage care for 100,000 lives when utilization shifts from loosely managed care to well managed care, as defined by the Milliman benchmarks.
An Extra Set of (Virtual) Hands in the OR

UAB Supporting New Surgeons through Google Glass

Usage of Google Glass in Surgery

Case in Brief: UAB¹ Medicine

- Academic medical center located in Birmingham, Alabama
- Combined Googles Glass and VIPAAR² virtual reality technology to perform remotely assisted shoulder replacement surgery
- Enables veteran surgeons to advise through real-time video conferencing using Google Glass, virtually demonstrate technique within surgical field using VIPAAR

1) University of Alabama at Birmingham.
2) Virtual Interactive Presence in Augmented Reality.

Reallocating Tasks Across the Acute Care Workforce

Substitution a Critical Lever to Improve Labor Cost Efficiency

Tactics for Acute Care Workforce Extension

- **Labor Substitution**
  - High
  - Relative Labor Cost Savings
  - Retool Existing Resources
    - Primary Care Physician
  - Disruption to Current Model
- **Technology Substitution**
  - Low
  - Automate Select Clinical Roles
    - Emerging Care Delivery Technology
  - Elevate Non-Physician Providers
    - Advanced Practitioners

Source: Health Care Advisory Board interviews and analysis.
Case in Brief: Project ECHO

- Program developed by the University of New Mexico (UNM) to extend care delivery to underserved, primarily through a virtual care training platform.
- Specialists train PCPs in managing a series of chronic and/or complex disease states.
- Currently expanding the program to encompass a wider range of services.

1) Hepatitis C Virus.
2) University of New Mexico.
3) As measured by sustained viral response (SVR); p>.01, difference in cure rates not significant.

Defraying a Big Ticket Input Cost

Gradual Shifts in Nursing Skill Mix Provide Year-Over-Year Savings

System-Wide Nursing Skill Mix at Inova

- **2010**
  - UAPs: 18%
  - RNs: 82%

- **2013**
  - Clinical Techs: 30%
  - RNs: 70%

Perennial Returns and Improvement—Without Reducing Headcount

- **$10M**
  - Annual labor cost savings across system from new nursing model

- **0**
  - Number of RN layoffs at Inova to reach target skill mix

- **65%**
  - Current average proportion of RNs in skill mix on med-surg units

Source:
Adding Efficiency Experts in Hospitalist Delivery

RN Skill Set Improves Efficiency, Coordination

### Improving Inpatient Efficiency
- Assists with quality measure documentation
- Tracks follow-up specialist, facility preferences
- Maintains admit-discharge patient census
- Completes various non-clinical paperwork

### Coordinating Patient Transitions
- Arranges patient transportation
- Schedules patient primary care follow-up
- Takes on complex patient discharges
- Manages medications and prescriptions

**Appropriate and Cost-Effective**
- Estimated labor cost reduction per FTE as a result of hiring RNs instead of Nurse Practitioners and Physician Assistants to provide hospitalist support
- **$50K**

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**Case in Brief: Our Lady of the Lake Regional Medical Center**
- 700-bed regional medical center in Baton Rouge, Louisiana
- Developed a team nurse position to support growing inpatient hospitalist group, focused on clinical logistics and coordination
- Over 15 year implementation of program, has realized substantial improvements to date in readmission rates, adjusted length of stay (ALOS) and a 100% reduction in emergency bed holds due to expedited discharges and coordination with central bed control

Source: Katz, P., “Team nurses: taking care of all the details,” Today’s Hospitalist, July 2013; Health Care Advisory Board interviews and analysis.
Forging Renewed Patient Brand Loyalty

Transfer Relationship from Doctor to System

**Former Patient Loyalty Paradigm**
*Patient-Physician Relationship Drove Broader System Loyalty*

- PCP gatekeeper to broader health system, system-based loyalty

**New Patient Loyalty Paradigm**
*Patient Develops Direct Health System Brand Loyalty*

- Convenient care experience drives loyalty to health system brand

Source: Health Care Advisory Board interviews and analysis.
The Future of Care Management?

Boxers, Briefs, and Biometrics

“Healthwear” Biometric Underwear

Monitored Clinical Indicators

- Skin temperature
- Body position
- Oxygen saturation
- Pulse rate
- Respiratory rate

Case in Brief: Sotiria Hospital

- 800-bed public teaching hospital based in Athens, Greece
- During clinical trial of male COPD patients, intervention group received real-time monitoring via “Healthwear” biometric undergarment
- Intervention lowered length of stay, 30-day readmission rates, emergency and outpatient clinic visits; equipment costs approximately €5,000 per patient (approximately $6,850)

Source: Milsis A et al., “Clinical Efficacy of the ‘Healthwear’ Wearable System in Chronic Patients’ Early Hospital Discharge”, presented to Royal Society of Medicine, London, 2009; Sotiria Hospital, Athens, Greece; Health Care Advisory Board interviews and analysis.
Redefining Roles Across the Primary Care Team

Advanced Medical Home Model Depends on Top-of-Capability Care

**Task Shifting in the Top-of-Capability Medical Home**

<table>
<thead>
<tr>
<th>Physician Tasks in Medical Home 1.0</th>
<th>PCP</th>
<th>RN/AP¹</th>
<th>MA</th>
<th>CHW²</th>
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<tbody>
<tr>
<td>Diagnose and treat low-acuity patients</td>
<td></td>
<td>✔</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Serve as patients’ main point of contact</td>
<td></td>
<td>✔</td>
<td>✔</td>
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<tr>
<td>Provide behavioral health expertise</td>
<td></td>
<td>✔</td>
<td></td>
<td>✔</td>
</tr>
<tr>
<td>Develop care plan</td>
<td></td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Diagnose and treat the acutely ill</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Manage care transitions</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Support the care plan on ongoing basis</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Consult with specialists</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Lead the care team</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
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**Majority of Patients Licensure-Agnostic**

63% Consumers who did not rank “treatment by a doctor” as preferred primary care attribute

Enhancing the Capabilities of Non-physician Providers

AkeLex Brings Care Guidelines to the Point of Care

Sample of Patients Presenting to Primary Care

- Majority of patients diagnosed and treated by non-physician providers using AkeLex
- Highly complex patients diagnosed and treated by PCP

Adaptive Knowledge Engine

- Uses artificial intelligence and pattern-based learning to improve the accuracy of diagnosis and treatment of patients
- Provides real-time support to evaluations, triage, and management decisions
- Creates a differential diagnosis based on data; then dynamically poses follow-up questions to identify outliers and communicate a more complete clinical picture

75%

Primary care patients autonomously diagnosed and treated by non-physician providers using AkeLex

Source: Health Care Advisory Board interviews and analysis.
Leading Through Cultural Transformation

Guiding Three Key Constituents Through an Era of Rapid Change

**Implications of New Workforce Strategies**

1. Change in labor mix
2. Reallocation of roles and responsibilities
3. Use of technology in new, more ways

**Effect on Three Key Constituents**

- **Patients**: Access majority of care through a non-physician care team or via virtual platforms
- **Physicians**: Evolve to team-based care across care settings and incorporate technology into practice
- **Administration**: Effectively manage three clinical enterprises, with patients—not just physicians—as key customer

Source: Health Care Advisory Board interviews and analysis.
New Blood
New Blood

• Elizabeth Holmes was 19 when she founded her company, Theranos.

• Her idea was to develop a wearable patch that administers a drug AND monitors variables in the patient's blood to see if the therapy is working, AND adjusts the drug accordingly.

• Today the company offers more than 200 of the most commonly ordered blood diagnostic tests without the need for a syringe, using an almost painless finger stick.
New Blood (continued)

• The company now has 500 employees and has raised more than $400mm from equity sales to investors who have valued the company at $9bb.

• "This is about being able to do good," says Holmes....

• "And it's about being able to change the healthcare system through what we believe this country does so well, which is innovation,...creativity,...and the ability to conceive of technology that can help solve policy challenges."
Our New Mission: Protecting Health Security

Health Systems Must Help Patients Succeed in New Retail World

An Expanding Health System Mission

Acute Care Provider

Population Health Manager

Health Security Advocate

Source: Health Care Advisory Board interviews and analysis.
Mercy Health – A Vision for 2025

Vision for an integrated health system that has redefined the value proposition in west Michigan:

• Customers at the center
• New collaborations
• Our reach and ministry has expanded
• Business model supports innovations and new care delivery
• Demonstrated improvement in community health
• Always making it better