COLORADO TECHNICAL UNIVERSITY

2018 DOCTORAL SYMPOSIUM

OCTOBER 2018
HEALTHCARE MANAGEMENT
HOW MARKET CORRECTIONS ARE TRANSFORMING INDUSTRIES:
AN ECONOMIC ANALYSIS

DR. PETER K MOSKOWITZ, PH.D.
1. General: Economic Stress Factors that have Changed Industries
   - A historical review how this has happened in the past
   - Why should we care?

2. Drilling down: Healthcare Industry Stress Factors
   - Early responders in the healthcare industry
   - Behavioral Economics—How asking the right questions brings awareness-applying SWOT analysis as a tool
   - “Block Chain” Is it a new 500 pound guerilla or passing fancy?

3. Conclusion: Healthcare Must Change
   - Post Script: Seeking solutions! Healthcare is a magnet for innovations, providing great opportunities for doctoral research (Denver Catalyst)
Why Does It Matter How Things Change?

**MAJORhifts** _that occur from:_

- New Knowledge
- BEHAVIORAL ECONOMICS
- Perception, Meaning and Mood
- Market and Industry Structure
- DEMOGRAPHICS
For example!

- the communication industry - land lines to wireless - convenience
- the steel industry - integrated steel to mini-mills - cost effectiveness
- higher education - brick and mortar to online - convenience
- the computer industry - mainframes to desk tops, to laptops, ipads, iphones. Convenience and cust effectiveness
- transportation, taxi to uber, lift - convenience (reserve a cab for tomorrow or)
- just in time
- the newspaper - paper to social media - on time news, convenience
- etc.
What has caused these businesses to disappear?

Woolworth
Circuit City
Thom McAnn Shoes
Tower Records
Blockbuster Video
US Steel
THEY GOT DISRUPTED

Disruptive Innovation

Theories of Innovation

Change Management

Efficiency Innovation - Doing More with Less

Sustaining Innovation CQI/TQM

Strategic Planning Cycle

Propose Mission

Propose Goals

Examine Internal Issues

Examine External Issues

Summarize Findings in a SWOT Analysis

Formulate Strategy
• The Drivers for Change: **Speed, quality and cost**

  From lab testing in the **clinic** to lab testing, genetics, blood glucose analysis at a central **processing facility**, for speed, quality and cost. – then convenience and tech allows it to be back in the clinic

Physicians once upon a time did **home visits**, then clinics were set up, and **hospitals became solution shops** with expensive technology to diagnose and treat. Now mobile technology and tele-health brings it back to the patient and home health.

• -Small incremental improvements
• Sustained innovation- QI – **better faster lab test results**
• Efficiency innovation- better supply chain, faster diagnostic tools
• Technological innovation- telemedicine
Trends
Healthcare Cost

- Is it a systems problem
- or a market problem?

- Is the system broken or
- the market dysfunctional?

- In a Well Functioning /Healthy Eco-System value is identified, the supply chain delivers, providers perform and outcomes are market driven.

- In a Functional Market – there is cost transparency and the value of the service or product is identified. (in the retail industry customers know the cost of the service or product before they receive it).

- In healthcare, pricing may not be cost based, reasonable or uniform.
ARE WE REDEFINING WHAT HEALTHCARE SHOULD BE?

- How care happens?
- Who delivers care?
- When and where care should it be delivered?
- **Creating new main stream healthcare delivery models**
  - 1. Physicians and Nurse Practitioners *prescribe* not just for the patient’s physiology but also *for the environment*
  - 2. The home becomes the hospital
  - 3. Medical diagnosis is an internet connection away
Where is the delivery of healthcare heading?

- **Inpatient Care**
- **Critical care**
- **Complex procedures**

- **Hospital and Home**
- **Lower acuity**

- **Smart Community Care**
- **Nurse Practitioner and Midlevel Providers**

- **Smart Care**
  - **Home Healthcare**
    - Independent living
    - MD/NP oversight
  - **Retail Healthcare**
    - Timely, convenient and cost efficient care
    - Low complexity-acute and urgent care
  - **mHealthcare**
    - Health promotion/wellness
    - Smart Cares, wearable technology,
  - **Virtual Care**
    - on Demand interactive/care triage
  - **Health Service Command Center**
    - Health care Traffic Control
The SWOT Analysis

- Strengths
- Weakness
- Opportunities
- Threats
There are many Innovations on the horizon!

For example, technologies that will transform the industry this year

**Liquid biopsies** - genetic testing mechanism

**Opioid addiction biosensors** – able to identify addiction risks through genetic testing.

**AI** - A robot that can interpret human body language and read emotions.

**Ultraviolet- C LED** lights for disinfecting hard to reach areas.

**Type 1 diabetes vaccines** - to slow or stop autoimmune attack on insulin producing islet cells
Weaknesses

Payments based on volume not outcomes

A System unprepared to handle the at risk population and the reason

Focusing on solutions for providers rather than the patient within the community

Good intentions but lack of integration of services

The slow FDA approval process compared to EU
Opportunities:
Block Chain - potential for a new Electronic Healthcare Record

No central database – All transactions are encrypted

NO ONE ENTITY OWNS THE MEDICAL RECORD & IT IS TRACKABLE
A BLOCK CHAIN RECORD CAN BE DISTRIBUTED AND SHARED ACROSS NETWORKS
Threats

- **Economic** - From 2.2 to 3.5 Trillion Dollar increase in healthcare cost over the last 10+ years/ Office of Management and Budget, Dir - Healthcare the Most Inefficient Industry
- Warren Buffet - Healthcare is the Tapeworm of American Business
- Amazon, JPMorgan and Berkshire Hathaway creating a new healthcare company - w/ Atul Gwande MD
- Google – developing a new healthcare model
- National Business Group on Health - we are dying
- Lockheed Martin spends $1.5 Billion in Health Insurance (2nd highest expense)
- Food basket problems: Farmers are dying - at an increased rate of suicide
- **Provider Health** - Burnout/Impaired Providers: Physicians and nurses - increasing suicide rate (job stress, untreated depression or other mental conditions)
- 28-40/100,000.)(rate 2X the general population and higher then military)
Threats

Retail Pharmacies Walgreen- and other retail/ pharmacy clinics are offering lower cost healthcare at much lower cost per visit, convenience, access - competing with primary care.

The US Postal Service- has looked into providing healthcare (a post office is within 5 miles of 95% of the population) That could reduce the healthcare access problem. There are many people who do not seek health services for various reasons- The Postman sees people in their home on a regular basis, if they need help. Leveraging access.

Bundle Services – for CDHP- Consumer Driven Health Plans
Obtaining targeted healthcare with bundled care and services for diabetes, congestive heart failure, cancer. Reward patients for healthy behavior. (Regina Herzlinger, PhD, Harvard.)

Online Auction for Healthcare- Medibid system- patients can bid for services.

(The Patient will see you Now) - Physician Entrepreneurs- patients can submit for bid on RFP’s for medical services – competitive pricing (eBay -for health services knee replacement surgery for $7,500) How about if hospitals wher
“While they may never completely go away, they will continue to shrink in number and importance. That is inevitable and good.”
Do Hospitals Still Make Sense?
Jennifer L. Wiler, MD, MBA,
Dec. 20, 2017
“inpatient care is not what the typical consumer needs”
Eric Topol MD, Cardiologist

Wrote the book.

“The Patient will See you now”

Turning healthcare upside down

Patient revenue skyrockets
Patient visits to Colorado hospitals — adjusted to account for outpatient volume — grew by 8.3 percent between 2009 and 2016. Meanwhile, the revenue per patient, including inpatient and outpatient revenues, increased by 76 percent over those seven years for Colorado hospitals.

**PATIENT VISITS**
In thousands

<table>
<thead>
<tr>
<th>Year</th>
<th>Visits</th>
</tr>
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<tbody>
<tr>
<td>2009</td>
<td>806,680</td>
</tr>
<tr>
<td>2016</td>
<td>873,274</td>
</tr>
</tbody>
</table>

**COST PER VISIT**
In dollars and percent increase

<table>
<thead>
<tr>
<th>Year</th>
<th>Cost</th>
<th>Percent Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>$36,551</td>
<td>($+53.0%)</td>
</tr>
<tr>
<td>2016</td>
<td>$64,225</td>
<td>(+75.7%)</td>
</tr>
</tbody>
</table>

Source: Colorado Department of Health Care Policy and Financing

*The Denver Post*
Why Innovate  
Affordability
The Elephant in the room

Costs continue their upward climb...
...with employers still picking up much of the tab...

$4,918  
2001

$10,743  
2009

$28,530  
2019

- Employer Cost
- Employee Payroll Contributions
- Employee Out of Pocket Expenses

Thanks to Dr. Paul Grundy, IBM's Director of Healthcare Transformation
Opportunities for innovation and disruption are extensive:
The rising cost of healthcare,
A large vulnerable underserved population demands access, affordability and quality.

We need to actively seek creative solutions and evaluate them.

What opportunities do you see?
Colorado mountain residents struggle to pay for health insurance

New hospitals can’t fill their new beds in Greeley, Castle Rock, Brighton and Fort Collins, Colorado.

Occupancy rates in those new hospitals ranged from half of capacity to less.

More patient beds likely will go empty now that UCHealth, Univ of Colorado Health, one of the biggest nonprofit hospital chains in the state, is opening new hospitals in Highlands Ranch, Longmont, Broomfield and Colorado Springs (not yet captured in the occupancy data).
What is wrong with this picture?

Will you be part of the Solution?

Research and Test it!
#Dowhatyoucant
How should healthcare leaders position themselves: with Resilience

Stay Calm and Carry On

In turbulent times we need thought leaders and executive coaches who think outside the box, are passionate about fixing health care systems problems and who can weather the storm.

A call for emotional intelligence:

Self-awareness-Go slow and deliberate
Self-regulation-Live your values
Motivation- understand inner drivers
Empathy- Respond to feelings
Essential Social Skills- Effective Communication
Demand Management

The rising cost of healthcare, a large vulnerable underserved population, demands major change, disruptive change.

The opportunity for researching and finding solutions is fertile.

We need to actively seek creative solutions and evaluate them.

What opportunities do you see?
WHAT HEALTHCARE LEADERS CAN DO?

INTERNALLY EXPLORE DISRUPTIVE SOLUTIONS

- Create a Spin-off organization –or pilot study
- Have the capacity to handle the market
- Be prepared to fail early before it gets too costly
- Use only existing resources
- Fine tune the innovation
WHO IS DOING IT?

• Early responders within the Healthcare Industry may look like this!

• **University of Pittsburgh Medical Center** – Acts more like a venture capital company, rather than a hospital.
  - Strategic Goal: Domination- become the Amazon of the healthcare industry
  - investing in 80 different projects

• **Virtual Hospitals (Digital Technology and Telemedicine)** “virtual care hospitals” (no hospital beds are owned).

• New models of compensation for care- like “value based” care.

• **HealthFirst of Rockledge, FL**. Changed their business model from being based on volume of care to one on outcome based care- putting them at clinical and financial risk.

• **Geisinger Healthcare**- a progressive integrated healthcare delivery system
The FDA is speeding up the process for getting medication and technology out to the public.

A Comprehensive Systematic Integrated approach is required, marginal and incremental changes will not work.

Physician centric/brick and mortar healthcare facilities will have to yield to home health, telemedicine, AI and ML.

A need to conceptualize a new economic model it is not about the lack of money. (Clayton Christensen)
Having the right systems in place!

Organizational Structures are mirrors of ourselves, possibility thinking and mental models. They form the basis for our understanding and the nature of our reality.

Adapted from Peter Senge- MIT Sloan School of Management
Author of the Fifth Discipline- applying systems thinking to create learning organizations.
DOCTORAL SYMPOSIUM

Thank You

coloradotech.edu/doctoral
#CTUdoc
Having an Emergency Response System

Earthquake

Significant impacts
• 126,575 square miles of impact area
• 44 million people impacted in eight states
• 86,000 casualties and 20,000 hospitalizations
• 3,700 deceased
• 2.1 million individuals in shelters
• More than 150 hospitals destroyed
• Severe infrastructure disruption
• Estimated shortages: 100 DMATs/16 FMS
phenomena stage these two things are really not theories
THE PENDING DISRUPTION OF HEALTHCARE - WILL IT COME FROM WITHIN OR WITHOUT?

- Disruption strikes unsuspecting companies and industries when they are not cognizant of what is happening,

- The initial instinct is to protect the turf – defensive action to slow down the disrupter

- When they do notice and start to take action, it tends to be too late.

What do each of the following have in common?

- Railroads
- Electricity
- Telephone system
- Radio
- TV
- Interstate Highway system
We all know these Historical Disruptions and their Impact on the Economy

1800 – Railroad- Commerce
1920 – Telephone networks – Audio communication at long distance
1930 – Electricity Grid – Agriculture, Industry to the Great Plains
1930 – Radio networks – Audio communication to large audiences
1940 – TV networks – Visual communication to large audiences
1950 – Automobile and the Interstate highway - Economic Growth and expansion

“Disruptive” Innovations
• A different outlook on an operation:

• Not looking at people’s needs based on demographic

• but based on the job to be done?

• Understanding the need:
• The customer (milkshake)
  • Not focus group
Market Share Detail

Total Number of Visits by Patient ZIP Code and Hospital Attended

<table>
<thead>
<tr>
<th>Hospital Name</th>
<th>80010</th>
<th>80011</th>
<th>80012</th>
<th>80013</th>
<th>80014</th>
<th>80015</th>
<th>80016</th>
<th>80017</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blue Spruce Hospital</td>
<td>53</td>
<td>90</td>
<td>166</td>
<td>175</td>
<td>212</td>
<td>82</td>
<td>29</td>
<td>80</td>
<td>887</td>
</tr>
<tr>
<td>Red Maple Medical Center</td>
<td>17</td>
<td>24</td>
<td>46</td>
<td>145</td>
<td>99</td>
<td>141</td>
<td>148</td>
<td>25</td>
<td>645</td>
</tr>
<tr>
<td>Yellow Aspen Health System</td>
<td>84</td>
<td>96</td>
<td>66</td>
<td>64</td>
<td>59</td>
<td>36</td>
<td>40</td>
<td>645</td>
<td></td>
</tr>
<tr>
<td>Purple Mountain Hospital</td>
<td>5</td>
<td>9</td>
<td>10</td>
<td>32</td>
<td>97</td>
<td>129</td>
<td>11</td>
<td>357</td>
<td></td>
</tr>
<tr>
<td>Amber Waves Medical Center</td>
<td>23</td>
<td>36</td>
<td>50</td>
<td>46</td>
<td>26</td>
<td>31</td>
<td>28</td>
<td>308</td>
<td></td>
</tr>
<tr>
<td>Columbine Hospital</td>
<td>5</td>
<td>15</td>
<td>31</td>
<td>36</td>
<td>41</td>
<td>45</td>
<td>14</td>
<td>144</td>
<td></td>
</tr>
<tr>
<td>Lark Bunting Medical Center</td>
<td>9</td>
<td>15</td>
<td>16</td>
<td>46</td>
<td>35</td>
<td>40</td>
<td>17</td>
<td>220</td>
<td></td>
</tr>
<tr>
<td>Snowfall Hospital</td>
<td>12</td>
<td>17</td>
<td>21</td>
<td>24</td>
<td>14</td>
<td>12</td>
<td>6</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>202</td>
<td>293</td>
<td>396</td>
<td>589</td>
<td>582</td>
<td>497</td>
<td>472</td>
<td>223</td>
<td>3254</td>
</tr>
</tbody>
</table>

Market Share Percent, Top 10 Hospitals

- Blue Spruce Hospital: 27%
- Red Maple Medical Center: 16%
- Yellow Aspen Health System: 13%
- Purple Mountain Hospital: 9%
- Amber Waves Medical Center: 7%
- Columbine Hospital: 7%
- Lark Bunting Medical Center: 7%
- Snowfall Hospital: 5%
- Glendale Regional Hospital: 5%
- Aurora Hospital: 3%
The Economic Incentive

Hospitals are financially rewarded with growing and gaining market share.

While machine learning and AI is strategically aligned towards the prejudices they are programed for, optimal growth. they are not geared towards self disruption.
• The Big Picture: These are all great innovations:
• But, Is healthcare killing the goose that lays the golden egg.

• Consumers and employers see healthcare as their 2\textsuperscript{nd} highest (cost center) business expense after human resources.
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