Massachusetts Association of Medical Staff Services
Worcester, Massachusetts

“Consumer Driven Healthcare- Are you ready?”

Jon Burroughs, MD, MBA, FACHE, FAAPL
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What Causes “Disruptive Innovation”?
How Disruptive Innovation Works

Graph 3: performance of disruptive innovations

- Performance demanded in high end market
- Established products performance
- Performance demanded in low end market
- Disruptive Innovation performance
Disruptive Solutions are **NOT AS GOOD** as the High End Originals! Why do they succeed?

- Fast food instead of elegant restaurants with made from scratch food by trained chefs?
- Southwest instead of Emirates Airline?
- Uber instead of traditional taxi service?
- Retail medicine instead of the physician’s office?
- E-health instead of a personalized physician relationship?
How and When did ‘Patients’ become ‘Consumers?’

- Cost/risk shifting from defined benefits to defined contribution ($338B (2014) to $413.5B (2019) out of pocket expenses)
- High deductible policies and health savings accounts (HSAs)
- Squeezed out of the traditional market (25% of disposable family income)
- Frustrated and ‘value starved’ from complexity, cost, and physician/hospital centered system
What do “Consumers” want and need?

• Value transparency (quality/cost) (The Surgery Center of Oklahoma)
• 24/7 access from anywhere
• Responsiveness to ‘market driven’ (as opposed to ‘sales driven’) demand
• Reasonable margins based upon real (and not fabricated or cost shifted) costs with optimization of cost structure
• Standardized evidence based practices and elimination of non-value added variation (quality/safety)
• Outstanding and responsive service!
Where did all the ‘Disrupters’ come from?

Chinese definition of crisis = danger + opportunity

- Regulatory reform (FFS to value based purchasing)
- Cost crisis and waste (40%)
- Value starved consumers
- Technology innovations (e.g. analytics, tele-health platforms etc.)
- Infusion of venture capital investment
Value Migration in the New Ecosystem (The New “Obama Care Index” on Wall Street)

- Inpatient services (40%)
- Inpatient ancillaries/elective procedures (50%)
- Retail diagnostics with 50% fall in price (85%)
- Traditional primary care practice (60%)
- Retail, mobile, social app options (85%)
- Clinical/business analytics (>400%)
- Retail pharmacy management/analytics (140%)
- Next generation diagnostic wireless tools (>1000%)
- Genomics/protenomics/microbiomics (>1000%)
- Traditional Healthcare System (40%)
- New Ecosystem ($5T market)

Source: Oliver Wyman (2014)
With the Internet, “The Earth is Flat” Thomas L. Friedman (The Rise of Brands and Fall of Geography)

• >100,000 health and fitness apps ($26 B worldwide industry)
• Top 10 health and fitness apps generate > 4 million free and 300,000 paid downloads
• Top ranked MyFitness Pal has 40 million registered users
• WebMD attracts 2.16 billion users annually to its websites
• VC investment of $2B into digital health
DO YOU HAVE AN APP YET? Healthcare System Apps (UCLA Health app by Mobile Smith):

1. **General Information**: map, directions, accepted insurance, phone numbers (tap to call)
2. **Services**: directory of services and providers (tap to call/e-mail)
3. **Virtual Tour**: 360 degree tour of rooms, maps and access information, times of operation
4. **ER Wait Times**: dynamic wait times for all facilities
5. **Interactive gallery, events, and social media**: streaming content and interactivity
Healthcare Provider Apps: The Four Most Common Potential Benefits

1. Free providers from offices and work stations (e.g. Epic’s Haiku, Allscripts, MedPlus’ QuestCare 360 mobile etc.)
2. Access to lab results and medical imaging (e.g. Mobile MIM for images, Normal/Pocket Lab Values etc.)
3. Convert a smart phone into a medical device (e.g. ECG Guide, MIM, MindWave etc.)
4. Practice Management Tools (e.g. Hospital Rounds, E/M Code Check etc.)
Employer/Employee Apps:

• **United Healthcare’s Health4Me:** cost and quality comparisons for 520 regional healthcare services

• **Aetna/Humana Mobile Apps:** enables health plan members to access healthcare data/analytics, employers can identify high cost/risk employees, savings calculators for health plan options, compare nearby physicians/providers, compare costs of various pharmaceuticals
Leading Patient/Consumer Apps:

1. Exercise (34%)
2. General Reference (11%)
3. Weight loss (10%)
4. Sleep and Meditation (9%)
5. Women’s Health (7%)
6. Tools and Instruments (6%)
7. Medication (5%)
8. Pregnancy (5%)

Source: Verisoni, 2012
• Worldwide Users: Facebook: 2 B, Twitter: 0.6 B, Linked in: 0. B (2016) (world pop 7.4 B)
• >70% of healthcare organizations actively utilize social media (97% facebook, 66% twitter, 54% youtube, < 20% google+, linkedin, blogs)
• 90% of text messages read within 3 minutes!
• Children’s Hospital (LA) and BIDMC (Boston) have raised millions in additional revenues VIA Facebook!
• Mayo Clinic Center for Social Media (MCCSM)
• CEO blogs (St. Luke’s Health, Boise, ID)
Different Phases of Care-Different Social Media Opportunities

**Healthy Patients:** engagement, self-assessment, health prevention, orientation to facilities/system

**Pre-Treatment:** self-assessment, campus navigation, pre-treatment counseling/education, social network of peers (e.g. Floyd Medical Center, Rome, GA pre-operative guide)

**Treatment:** care coordination, feedback and monitoring, patient generated data, social network (e.g. Dallas Children’s Secure Family Social Network for addictions)

**Post-Treatment:** follow up reminders, monitoring, patient generated data/feedback/understanding, self-care tools, support for peer group, giving back (e.g. Boston University Discharge Advocate)
From a “Supply-Based” to “Demand-Based” Economy

1. The Quantified Self
2. Smart Care Teams (eco-system)
3. Transparent Consumer Markets
4. Retail Clinics and ‘Focused Factories’
5. E-Health
6. Community Collaborations
1. The Healthcare Consumer is Evolving to the “Quantified Self”

- Healthcare apps with monitoring devices, social media, blogs, and contact with e-health care providers (95 M and counting)
- Big data and predictive analytics (IBM Watson)
- Passive monitoring with early interventions (wireless technology)
- Lifestyle medicine (pursuing personal goals/objectives)
- Consumer engagement with customized self-managed care plan
1. The “Quantified Self” can be Digitized (Eric Topol, MD):

1. Exposome: environmental exposures
2. Epigenome: chemical changes to one’s DNA
3. Microbiome: the DNA of one’s microorganisms
4. Metabolome: one’s metabolites
5. Proteome: one’s proteins
6. Transcriptome: one’s mRNA
7. Genome: one’s DNA
8. Anatome: one’s body images (MRI etc.)
9. Physiome: one’s physiologic sensors
10. Pheonome: one’s social/external interactions
1. The “Quantified Self” can be detected through the use of:

Adhesive bandages, glasses, earbuds, wristbands (e.g. Apple Watch), headbands, necklaces, contact lenses, garments, smartphones with microfluidics and detect:

- Vital signs and heart rhythms
- O2 saturation and cardiac output
- Eye pressure (e.g. glaucoma)
- Blood sugar/HbA1C
- Brain waves
- EKG
- Lab tests and breath analyzers
2. Smart Care Teams

• Health Information Exchange (HIE) with coded predictive analytics and decision support tools
• Enables the risk stratification of individuals-personalized EBM
• Real time biometric/clinical feedback
• Requires access to enterprise IT/analytics capability
• Physician/patient ratio predicted to move from 1 to 2,000 to 1 to 6,000
Why are Business and Clinical Analytics Essential?

• Reactive (Excel spreadsheets with data) to proactive (actionable information)
• Isolated (silos) to aligned (shared) information
• Confidential to transparent/un-blinded information
• Reflect/analyze to manage/predict/re-design in real time
### Predictive Modeling: Predictive Summary

<table>
<thead>
<tr>
<th>Specialty</th>
<th>Employees</th>
<th>Spouse</th>
<th>Dependent</th>
<th>Total</th>
<th>% of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Otolaryngology</td>
<td>4</td>
<td>0</td>
<td>14</td>
<td>18</td>
<td>47.37%</td>
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<tr>
<td>Dermatology</td>
<td>0</td>
<td>0</td>
<td>7</td>
<td>7</td>
<td>18.42%</td>
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<tr>
<td>Ophthalmology</td>
<td>3</td>
<td>0</td>
<td>3</td>
<td>6</td>
<td>16.79%</td>
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<tr>
<td>Orthopedics &amp; Rheumatology</td>
<td>1</td>
<td>0</td>
<td>5</td>
<td>6</td>
<td>15.79%</td>
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<tr>
<td>Gastroenterology</td>
<td>2</td>
<td>0</td>
<td>3</td>
<td>6</td>
<td>13.16%</td>
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<tr>
<td>Pulmonology</td>
<td>0</td>
<td>0</td>
<td>6</td>
<td>6</td>
<td>13.16%</td>
</tr>
<tr>
<td>Psychiatry</td>
<td>1</td>
<td>0</td>
<td>3</td>
<td>4</td>
<td>10.53%</td>
</tr>
<tr>
<td>Urology</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>3</td>
<td>7.09%</td>
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<tr>
<td>Endocrinology</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>2</td>
<td>5.25%</td>
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<tr>
<td>Infectious Diseases</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>5.25%</td>
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<tr>
<td>Cardiology</td>
<td>0</td>
<td>0</td>
<td>1</td>
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<td>2.63%</td>
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<tr>
<td>Hematology</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>2.03%</td>
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<tr>
<td>Late Effects, Environmental Trauma and Poisoning</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>2.63%</td>
</tr>
<tr>
<td>Neonatology</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>2.63%</td>
</tr>
<tr>
<td>Neurology</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>2.63%</td>
</tr>
<tr>
<td>No Known Conditions</td>
<td>0</td>
<td>1</td>
<td>8</td>
<td>9</td>
<td>23.83%</td>
</tr>
<tr>
<td><strong>Total Unique Members</strong></td>
<td></td>
<td></td>
<td></td>
<td>32</td>
<td>100%</td>
</tr>
</tbody>
</table>

**% of Total Members**

<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
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<tbody>
<tr>
<td>Total Annual Low</td>
<td>$27,020</td>
<td>$25</td>
<td>$42,450</td>
<td>$69,535</td>
<td></td>
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<tr>
<td>Total Annual High</td>
<td>$37,900</td>
<td>$210</td>
<td>$55,260</td>
<td>$93,330</td>
<td></td>
</tr>
<tr>
<td>% of Total High</td>
<td>40.08%</td>
<td>0.22%</td>
<td>53.19%</td>
<td>53.19%</td>
<td></td>
</tr>
</tbody>
</table>

**Source:** Courtesy of Conifer Health Solutions, a revenue cycle management, population health management solutions company. [www.coniferhealth.com](http://www.coniferhealth.com)
3. Transparent Consumer Markets

- Castlight, ZocDoc
- www.hospitalcompare.hhs.gov
- www.physiciancompare.hhs.gov
- Transparent pricing (referenced based pricing), quality metrics
- Significant financial incentives by employers and payers (narrow/tiered networks)
- I-phone will be the primary healthcare entry point
4. Focused Factories

Shouldice Hernia Center, Thornhill, Ontario (1945): 89 beds, 5 ORs, 7,500 cases/year, LOS 3 days (surgery on day 2)

Average general surgeon: 30-50 cases/year

Shouldice surgeon: 700 cases/year

99.5% success after 300,000 cases

Harvard Business School: 4th most popular case study (>500,000 copies)
4. Focused Factories-Key Characteristics

- Singular focus with a standardized approach/culture/service
- World class quality, service, and cost-effectiveness
- Team based approach willing to adopt and support evidence based clinical/management practices
- Often bundled payments for outcomes
- Strong world-wide or regional brand
4. Retail Clinics

• Predicted to grow to 50,000 outlets by 2020
• Staffed by APRNs under medical directorships
• 36 high volume/low risk diagnoses and treatments (URI, OM, bronchitis, rash without fever etc.) with strict compliance to protocols and medical consultation
• No charge for consultation and referral
• Increasing use of lower cost diagnostics (e.g. Theranos)
Primary care drives lifetime patient value

But this basic relationship is threatened:

Patients cannot get in to see a PCP

So retail clinics are meeting the demand

Examples of Disruptive Entrants: CVS Health/Walgreens/WalMart

- CVS: 7,700 retail pharmacies, 900 walk-in medical clinics ($20 B), pharmacy benefits management with 64M plan members, $132 B net revenues with operating margin of 15.35%
- Walgreens: now treats chronic medical conditions (diabetes, hypertension)
- WalMart adds tele-medicine capabilities (Smart Care Doc) to its retail clinics
5. E-Health: Disruptive Innovation for Low Cost 24/7 Access

• Retail Kiosks (employers, retail and clinic settings)

• Mobile apps and devices (computers, I-pad, smart phones, smart watches, etc.)

• 24/7 access to physicians or APRNs for common, low risk, easy to diagnose/manage problems

• Rapid expansion with large employers, health systems, health plans
5. E-Health: Largest Player-
American Well, Boston, MA

• Turnkey tele-health platform (lease or buy) to organizations/health plans/payers/employers, online care group
• Access to 100 M health plan members across 45 states
• $49/visit VIA credit, debit, HSA cards
• Payment processing, payer management, advanced reporting and analytics, dynamic pricing options, e-prescribing, provider driven follow up tools, medical home tools (registries)
Tele-dermatology
And an informed encounter . . . no blind dates

• Standard integration includes:
  ▪ Biometrics and vitals from:
    – Apple Health app
    – Kiosk diagnostic devices
  ▪ Prescription data via SureScripts
  ▪ Patient-supplied medical history
  ▪ Past telehealth visit records and provider notes

• Web services can import/present:
  ▪ Patient medical records from EMR
  ▪ Patient gaps-in-care recommendations
5. E-Health: Most Common Uses

• Urgent care (e.g. URI, UTI, rash, flu etc.)
• Chronic medical management
• On demand inpatient consults (e.g. rural areas)
• Emergency department case flow (MSE)
• Home healthcare services
• Post discharge/surgical care
• Behavioral health
• Contribute physicians to national pool
Who uses telehealth urgent care? And when?

5. E-Health Acute Care Application: E-ICU (NM/ID)

- 2 ICU RNs + 3 ICU MD/DOs cover 80-100 beds throughout the state
- $3M operating costs annually
- Significant reductions in cost per case, LOS, complications with improved outcomes
- 25% average cost savings = $800 X 80 X day= $64,000/day throughout the state ($23,360,000 annually)
6. Community Collaborations

- YEAH! (Youth Engaged in Activities for Health) (Boise, ID): address obesity in youth aged 5-16 years
- FitOne/Star Track (Boise, ID): promote fitness among all age groups with fun runs and two day health expo (free screenings) (>10,000 participants and over 10,000 miles logged!)
- HealthyYou (Boise, ID): promote employee health and enable qualification for lower premiums on employee health plan
Opportunities for 2017:

• Create an app with e-health access for your practice/clinics and regional employers
• Consider a retail health collaboration with regional employers for minor acute care
• Consider a focused factory for high quality/service-low cost procedures
• Consider a high quality/low cost solution shop for complex poorly differentiated conditions
• Consider palliative care programs throughout your system
Opportunities for 2017:

• Consider disease management programs for your high cost/risk clinical activities

• Consider a scribe program with APPs for low margin/risk clinical documentation and activities to move physicians into high leveraged clinical and managerial oversight positions

• Lease or purchase clinical/business analytics with predictive/decision alert capabilities (non-optional)

• Develop a business plan to move from FFS to risk based capitation (ideally by 2019)
Final Things to Think About:

“If the rate of change on the outside is greater than the rate of change on the inside, the end is near.”  Jack Welch

“If you do not change direction, you may end up where you are heading.”  Lao Tzu

“Our only security is our ability to change.”  John Lilly, MD
Questions, Discussion, Key Learnings, and Wrap Up
Thank You for Joining Us!

Jon Burroughs, MD, MBA, FACHE, FAAPL
jburroughs@burroughshealthcare.com; 603-733-8156