The Hospital of the Future

Restructuring the Acute Care Enterprise to Compete on Value
LEGAL CAVEAT
The Advisory Board Company has made efforts to verify the accuracy of the information it provides to members. This report relies on data obtained from many sources, however, and The Advisory Board Company cannot guarantee the accuracy of the information provided or any analysis based thereon. In addition, The Advisory Board Company is not in the business of giving legal, medical, accounting, or other professional advice, and its reports should not be construed as professional advice. In particular, members should not rely on any legal commentary in this report as a basis for action, or assume that any tactics described herein would be permitted by applicable law or appropriate for a given member’s situation. Members are advised to consult with appropriate professionals concerning legal, medical, tax, or accounting issues, before implementing any of these tactics. Neither The Advisory Board Company nor its officers, directors, trustees, employees and agents shall be liable for any claims, liabilities, or expenses relating to (a) any errors or omissions in this report, whether caused by The Advisory Board Company or any of its employees or agents, or sources or other third parties, (b) any recommendation or graded ranking by The Advisory Board Company, or (c) failure of member and its employees and agents to abide by the terms set forth herein.

The Advisory Board is a registered trademark of The Advisory Board Company in the United States and other countries. Members are not permitted to use this trademark, or any other Advisory Board trademark, product name, service name, trade name, and logo, without the prior written consent of The Advisory Board Company. All other trademarks, product names, service names, trade names, and logos used within these pages are the property of their respective holders. Use of other company trademarks, product names, service names, trade names and logos or images of the same does not necessarily constitute (a) an endorsement by such company of The Advisory Board Company and its products and services, or (b) an endorsement of the company or its products or services by The Advisory Board Company. The Advisory Board Company is not affiliated with any such company.

IMPORTANT: Please read the following.

The Advisory Board Company has prepared this report for the exclusive use of its members. Each member acknowledges and agrees that this report and the information contained herein (collectively, the “Report”) are confidential and proprietary to The Advisory Board Company. By accepting delivery of this Report, each member agrees to abide by the terms as stated herein, including the following:

1. The Advisory Board Company owns all right, title and interest in and to this Report. Except as stated herein, no right, license, permission or interest of any kind in this Report is intended to be given, transferred to or acquired by a member. Each member is authorized to use this Report only to the extent expressly authorized herein.

2. Each member shall not sell, license, or republish this Report. Each member shall not disseminate or permit the use of, and shall take reasonable precautions to prevent such dissemination or use of, this Report by (a) any of its employees and agents (except as stated below), or (b) any third party.

3. Each member may make this Report available solely to those of its employees and agents who (a) are registered for the workshop or membership program of which this Report is a part, (b) require access to this Report in order to learn from the information described herein, and (c) agree not to disclose this Report to other employees or agents or any third party. Each member shall use, and shall ensure that its employees and agents use, this Report for its internal use only. Each member may make a limited number of copies, solely as adequate for use by its employees and agents in accordance with the terms herein.

4. Each member shall not remove from this Report any confidential markings, copyright notices, and other similar indicia herein.

5. Each member is responsible for any breach of its obligations as stated herein by any of its employees or agents.

6. If a member is unwilling to abide by any of the foregoing obligations, then such member shall promptly return this Report and all copies thereof to The Advisory Board Company.
The Hospital of the Future

Restructuring the Acute Care Enterprise to Compete on Value

1. An Acute Care Market in Transition
2. The Hospital of the Future
3. The Foundation of the Enterprise
Is This The Hospital of the Future?

Walnut Creek, California, 1953

Modern Means to the Same Ends

Investments Fueled by Arms Race and Regulation

<table>
<thead>
<tr>
<th>1950s Hospital</th>
<th>Today's Hospital</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Brand New Technology</strong></td>
<td><strong>More Capacity and Better Amenities</strong></td>
</tr>
<tr>
<td>Upright X-rays</td>
<td>Baby Bassinet Drawers</td>
</tr>
<tr>
<td>DaVinci Robots</td>
<td>Private Rooms</td>
</tr>
</tbody>
</table>

Source: Youtube.com; Health Care Advisory Board interviews and analysis.
Hospitals Historically the Center of Health Care

Policy, Market Dynamics Drove Asset-Based Strategy

Major Milestones in Hospital Growth

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1946</td>
<td>Enactment of Hill-Burton Act funds nationwide hospital construction</td>
</tr>
<tr>
<td>1966</td>
<td>Passage of Medicare and Medicaid grows patient volumes</td>
</tr>
<tr>
<td>1983</td>
<td>Implementation of DRG reimbursements first attempt to reform inpatient payment model</td>
</tr>
<tr>
<td>1990s</td>
<td>Growth of managed care spurs round of hospital consolidation</td>
</tr>
<tr>
<td>2010–Present</td>
<td>Passage of ACA leads to coverage expansion and rise of ACOs</td>
</tr>
</tbody>
</table>

Source: Health Care Advisory Board interviews and analysis.

Confronting an Outdated Set of Assumptions

Traditional Playbook Beginning to Falter

Predictable Price Growth

- Fee-for-service payments tied solely to volume
- Payers passing through steady price increases to employers

Steady Hospital Demand

- Majority of surgeries requiring hospital stays
- Population health limited to California
- Bundled payments, other payment models largely in infancy

Similar and Local Competition

- Competition largely restricted to other local hospitals
- Proliferation of broad network offerings, ensuring access to all acute care facilities

Longstanding Regulatory Protections

- Certificate of Need laws restricting new competition from entering market
- Tax-exempt status allowing low-cost access to capital

Source: Health Care Advisory Board interviews and analysis.
ACA Reductions Compounding Demographic Changes

No End in Sight for Inpatient Reimbursement Cuts

Hospitals Bearing the Brunt of Payment Cuts

Reductions to Medicare Fee-for-Service Payments

<table>
<thead>
<tr>
<th>Year</th>
<th>Adjustments</th>
<th>ACA IPPS(^1) Update Adjustments</th>
<th>ACA DSH(^2) Payment Cuts</th>
<th>MACRA(^3) IPPS Update Adjustments</th>
<th>Total Reductions</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>($4B)</td>
<td></td>
<td></td>
<td></td>
<td>($4B)</td>
</tr>
<tr>
<td>2014</td>
<td>($14B)</td>
<td></td>
<td></td>
<td></td>
<td>($15B)</td>
</tr>
<tr>
<td>2015</td>
<td>($24B)</td>
<td></td>
<td></td>
<td></td>
<td>($28B)</td>
</tr>
<tr>
<td>2016</td>
<td>($29B)</td>
<td></td>
<td></td>
<td></td>
<td>($32B)</td>
</tr>
<tr>
<td>2017</td>
<td>($38B)</td>
<td></td>
<td></td>
<td></td>
<td>($42B)</td>
</tr>
<tr>
<td>2018</td>
<td>($54B)</td>
<td></td>
<td></td>
<td></td>
<td>($58B)</td>
</tr>
<tr>
<td>2019</td>
<td>($67B)</td>
<td></td>
<td></td>
<td></td>
<td>($72B)</td>
</tr>
<tr>
<td>2020</td>
<td>($76B)</td>
<td></td>
<td></td>
<td></td>
<td>($83B)</td>
</tr>
<tr>
<td>2021</td>
<td>($86B)</td>
<td></td>
<td></td>
<td></td>
<td>($94B)</td>
</tr>
<tr>
<td>2022</td>
<td>($94B)</td>
<td></td>
<td></td>
<td></td>
<td>($94B)</td>
</tr>
</tbody>
</table>

1) Inpatient Prospective Payment System.  
2) Disproportionate Share Hospital.  


Assumption #1: Predictable price growth

$30.8B Reduction in Medicare bad debt payments

$29.5B Savings from moving to site-neutral payments

$14.6B Cuts to teaching hospitals and GME payments

$720M Cuts to critical access hospitals

Assumption #2: Steady hospital demand

Lackluster Inpatient Demand Adding to the Challenge

Inpatient Days, Bed Occupancy Rate Continue Downward Trend

Historical Inpatient Volumes Growth

Millions of Inpatient Days; Days Per 1,000 of Population

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Inpatient Days</th>
<th>Inpatient Days per 1,000 Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>193</td>
<td>628</td>
</tr>
<tr>
<td>2010</td>
<td>189</td>
<td>614</td>
</tr>
<tr>
<td>2011</td>
<td>187</td>
<td>600</td>
</tr>
<tr>
<td>2012</td>
<td>185</td>
<td>591</td>
</tr>
<tr>
<td>2013</td>
<td>182</td>
<td>577</td>
</tr>
</tbody>
</table>

Inpatient Bed Occupancy

Percentage of Hospital Capacity

<table>
<thead>
<tr>
<th>Year</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>64%</td>
</tr>
<tr>
<td>2013</td>
<td>60%</td>
</tr>
</tbody>
</table>

Factors Mitigating Demand Growth


©2015 The Advisory Board Company • advisory.com • 31472B
Facing an Increasingly Competitive Market

Outside Parties Creating De-Facto Narrow Networks at the Point of Referral

Innovators Using Wide Range of Criteria to Identify, Redirect Care to Top Performers

Cost
- Historical cost
- Referral patterns
- Where procedures are performed
- Willingness to accept set price

Patient Experience
- Patient satisfaction scores
- Communication skills
- Seamless integration with other providers (e.g., sharing reports)

Access
- After-hours availability
- Telehealth capabilities

Appropriateness of Care
- Correct diagnosis
- Appropriate intervention

Quality
- Complication, mortality rates
- Readmission rates
- Patient functional status

Physician Experience
- Volume of procedures
- Board certification
- Research experience
- Fellowships

Primary Data Sources:

- **Claims**: Medicare data
- **Public tools, databases, rankings**: Interviews

Assumption #3: Similar and local competition

Assumption #4: Longstanding regulatory protections

Regulatory Safeguards Under Scrutiny

Hospitals Can’t Bet Indefinitely on Traditional Protections

Scrubtin of Hospital Tax-Exempt Status
Passage of insurance expansion and potential reduction in charity care outlays prompting examination of hospital tax-exempt status

CMS Piloting Three-Day SNF Waiver
Usage of payment innovation programs to determine physician referrals can bypass hospitals altogether

Adoption of Site-Neutral Payments
Starting in 2017, new hospital acquisitions of off-campus physician sites subject to site-neutral payments

Certificate of Need Laws Under Review
State hospital commissions and regulatory authorities revisiting Certificate of Need laws, spurring new competition

Source: Health Care Advisory Board interviews and analysis.
But Breaking Even on Medicare No Small Feat

Option 1: Wait for organic growth

But at Substantially Lower Reimbursement

Baby Boomer Surge Underway

623 K
New Medicare beneficiaries each year 1995-2010

1.6 M
New Medicare beneficiaries each year 2010-2030

2X
Medicare beneficiaries in 2030, relative to 2010

But at Substantially Lower Reimbursement

144%
Percentage of hospital costs covered by commercial reimbursement, 2011

88%
Percentage of hospital costs covered by Medicare reimbursements, 2010


Option 2: Pursue M&A

Seeking Safety in Numbers

Many Hospitals Turning to M&A to Solidify Market Position

Hospital and Health System M&A Activity

Number of Hospitals Part of a Health System

Total Deal Volume

2,668
2004

3,144
2013

18% growth across decade

Experience Indicates Increased Provider Price Leverage the Primary Result

**Factors Contributing to the Lack of Success of Consolidation Efforts**

- Prioritizing and rewarding individual hospital performance over system plans
- Operational challenges related to full integration of services
- Limited political capital to drive change from M&A

"Disturbingly, about one in five acquired hospitals actually went from having positive margins before a deal to negative margins two years after a deal."

*Booz and Company*

Source: Saxena, Sharma, Wong, "Succeeding in hospital & health systems M&A: Why so many deals have failed, and how to succeed in the future," Strategy&, 2013; Vogt, Town, "How Has Hospital Consolidation Affected the Price and Quality of Hospital Care?" Robert Wood Johnson Foundation, 2006; Sari, "Do competition and managed care improve quality?," *Economics of Health Care Systems*, 2002; Pilch, Gottlieb, "The Urge To Merge In Healthcare: This Time, Will It Be Different?", Morning Consult, 2014; Health Care Advisory Board interviews and analysis.

The Unsustainable Acute Care Enterprise

Current Hospitals Typically Unsuitable for Future Market Demands

**Duplicative Services**
- Aggregated through reactive M&A
- Typically poorly distributed across market

**Overbuilt Capacity**
- Over-bedded relative to future market demands

**Incompatible Offerings**
- Inpatient beds poorly matched for future market demands
- Capacity largely inflexible, unable to match changing patient acuity

Source: Health Care Advisory Board interviews and analysis.
The New Focus of Acute Care Cost Control

- Engaging physicians in developing care standards
- Eliminating quality shortfalls that increase cost per case
- Reallocating acute care services across system
- Rightsizing excess inpatient capacity
- Updating labor staffing models
- Revising strategic sourcing plans

Labor and Supply Cost Reduction
- Minimizing unwarranted clinical variation

Difficulty

Fixed Cost Restructuring

High

Savings Potential

Low

Rewriting Our Strategic Playbook

Asset Strategy Can No Longer Precede Service Strategy

Old Paradigm: Asset-Based Service Strategy
- How can we use our excess capacity?
- How do we allocate our limited capital?
- What new technologies should we invest in?
- What services can we place in our assets?
- Where do we have a competitive advantage?
- What physician groups do we need to appeal to?

Best-in-Class Solution: Service-Based Asset Strategy
- What is our organization’s future business model?
- Comprehensive service planning
- Principled asset reconfiguration

Source: Health Care Advisory Board interviews and analysis.
Mapping the Transition Path

Key Steps to Rightsize and Restructure Acute Care Capacity

Redistributing Services Across the Enterprise

1. Mapping Acute Care Services to Shifting Market Demand
   - Reallocate services across acute care sites to attain scale and reduce duplication

2. Rightsizing Fixed Costs
   - Remove excess capacity to match future demand projections without endangering margins or community relations

3. Investing in Low-Cost Care Site Alternatives
   - Refocus capital spending on assets needed to meet emerging consumer needs and support growth objectives

Reconfiguring the Physical Asset Portfolio

1. Unified acute care service distribution strategy
2. Principled service rationalization
3. Multi-provider clinical partnerships
4. Patient-oriented transfer centers

5. Flexible facility design principles
6. Gradual bed reduction
7. Hospital campus conversion
8. Asset ownership exit strategy
9. Micro-hospital development
10. Hospital-without-beds deployment
11. Sub-acute facility substitution
12. Hospital-at-home strategy

Source: Health Care Advisory Board interviews and analysis.
Mapping Acute Care Services to Shifting Market Demand

1. Unified acute care service distribution strategy
2. Principled service rationalization
3. Multi-provider clinical partnerships
4. Patient-oriented transfer centers
Historical Strategy Leaves Enterprise Unprepared for Future Market Demand

A Confederation of Hospital Assets

- Organizations have traditionally grown through M&A
- Goals of mergers and acquisitions primarily new growth rather than delivery of low-cost acute care across market

Overlapping Service Mix

- Most hospital sites traditionally “all things to all people”
- Continue to offer comprehensive clinical service portfolio, regardless of volumes within the community or presence of other system assets

1. Unified acute care service distribution strategy

Rationale Before Rationalization

Enterprise-Wide Perspective a Foundational First Step

Too Many Organizations Lack Fundamentals of Integration

Facility-level Executives
Local leaders focused on maximizing performance of separate, often competing “fiefdoms”

Physician Workforce
Twin cultures of individualism, tribalism persist despite stronger contractual alignment

Frontline Staff
Rank-and-file workers unaware of, disengaged from system priorities

Integrated Strategy Benefits Entire Enterprise

Decisions benefit the system as a whole

Prevent individual hospitals from competing with each other

Reduced overhead and operational costs
Realigning Hospitals to Support Enterprise Strategy

Intermountain Outlines Specific Strategies for Business Model Change

Commitment to Population Health

“For us, it’s a mission issue. We are working to transform ourselves because our mission requires us to provide the highest value care we can, and we believe this model best enables us to meet that obligation.”

Joe Mott, VP of Healthcare Transformation

Case in Brief: Intermountain Healthcare

• 22-hospital health system headquartered in Salt Lake City, Utah
• Intermountain Medical Group employs 1,100 primary and secondary care physicians
• SelectHealth Insurance plans enrolls 750,000 members

1) Consumer price index.

©2015 The Advisory Board Company • advisory.com • 31472B

Clear Roles Prevent Costly Duplication

Intermountain Classifies Facilities Across System

Spectrum of Service Offerings

1 Level 1: Family Practice clinic
2 Level 2: Pediatrics, internal medicine, urgent care
3 Level 3: Outpatient surgery, advanced imaging
4 Level 4: General community hospital
5 Level 5: Broader community hospital
6 Level 6: Tertiary hospital, full-service portfolio, NICU
7 Level 7: Teaching, Transplant, Level 1 Trauma

©2015 The Advisory Board Company • advisory.com • 31472B

Inadequate Volumes Threaten Quality

A Multi-system Commitment to Quality

Limits placed on…

- Joint replacement
- Bariatric surgery
- Lung cancer surgery
- Esophagus surgery

“People realized that this is something we have to do, the direction in which we have to go.”

Peter Pronovost
Director, Armstrong Institute for Patient Safety and Quality at Johns Hopkins

Rightsizing Fixed Costs

5. Flexible facility design principles
6. Gradual bed reduction
7. Hospital campus conversion
8. Asset ownership exit strategy
On the Brink of Unsustainability

Fixed Costs Remain Despite Utilization Declines

Despite Reductions in Hospital Beds, Most Organizations Still Have Excess Capacity


![Bar chart showing the number of inpatient beds from 1980 to 2012.]

- 1.3 M beds in 1980
- 1.2 M beds in 1990
- 0.98 M beds in 2000
- 0.94 M beds in 2005
- 0.94 M beds in 2010
- 0.92 M beds in 2011
- 0.92 M beds in 2012

Significant Opportunity for Savings in Reducing Excess Bed Capacity

Estimated Cost Savings from Eliminating Expectedly Empty Beds in Rhode Island

- $25K–106K per bed when removing beds piecemeal, includes reduction in supply and staff expenses
- $580K per bed when closing entire facilities, includes facility, supply, and staffing cost reductions

Despite Reductions in Hospital Beds, Most Organizations Still Have Excess Capacity


- Average inpatient occupancy, 2013: 60%

Rightsizing Fixed Costs

Hospital Asset Misaligned with Market Needs

Three Structural Challenges

- **Inflexible Beds**
  - Ill-equipped to handle fluctuating acuities
  - Incompatible with aging population

- **Excessive Beds**
  - Overbuilt hospital remains partially full
  - Cost of running asset is fixed

- **Indefinite Asset Ownership**
  - Hospitals own real estate
  - Unable to exit legacy business

Flexible facility design principles
Gradual bed reduction
Hospital campus conversion
Asset ownership exit strategy

1) Calculated by taking 18% of the average cost per bed, by bed type, from the 2009 and 2010 Medicare Cost Report Data, inflated at 2% annually to reflect natural price growth.


Source: Health Care Advisory Board interviews and analysis.
Asset Flexibility No Longer Optional

Emerging Demand Requires Different-in-Kind Capacity

### Increasing Range of Acuity
- Elderly population will require increased access to high-acuity care
- Bed specialization rather than flexibility feeds excess capacity

### New Technology
- Next-generation clinical technologies may require additional space needs
- Obese populations have unique space needs such as larger rooms and additional equipment

### Fluctuating Acuity and Utilization
- Fluctuating demand in high-cost areas creates unanticipated capacity constraints
- Rise in high-deductible health plans creates seasonal ebb and flow of patients

### Rise in Chronic Diseases
- Unmanaged chronic diseases and comorbidities put pressure on critical care capacity
- Rising obesity levels contribute to larger number of patients with chronic diseases

Templates Facilitate Uniform Facilities

Facility Standardization Minimizes Unwarranted Clinical Variation

Clinical Staff Move Seamlessly Between Banner Sites

Improved Speed-to-Market

2 Months

Reduced project duration due to shortened schematic design phase

Case in Brief: Banner Health
- 29-hospital non-profit health system headquartered in Phoenix, Arizona
- Applying universal design template created by SmithGroupJJR that can be adapted for new and renovated facilities for acute, primary, and specialty care
- Facilitates adherence to clinical protocols as staff travel between identical sites of care
- Ongoing usage on projects allows for continuous improvement of templates
Starting to Confront an Unfortunate Reality

Acute Care Economics No Longer Supporting Every Hospital

Hospital Closures Making Headlines

December 26, 2014
“Quincy Medical Center Closes its Doors at Midnight”

May 22, 2014
“The End for Long Island College Hospital”

August 21, 2015
“It’s Tragic: Tonopah’s Only Hospital Closes”

April 7, 2015
“Spaulding Hospital to Close in Salem”

May 23, 2015
“Yadkin Valley Community Hospital Shut Down”


“Any hospital executive in our state would tell you that we are overbedded. There’s probably two too many hospitals in our city.”

SVP of Corporate Strategy
Health System in the Northeast

Consolidating Two Hospitals into One

Redistribution Addresses Geography, Volume Challenges

Two Duplicative Full-Service Hospitals in Downtown Indianapolis

- Patients expected to travel between sites
- Too expensive to update two physical plants

Low Volumes in One Facility Illuminate Need to Redistribute

98%

35 out of 220

Patients using St. Mary Hospital for outpatient services
Average census of licensed beds at St. Mary Hospital

Case in Brief: IU Health

- 17-hospital health system headquartered in Indianapolis, IN
- Consolidating two downtown campuses by moving services from the 339-bed University Hospital to the 616-bed Methodist Hospital
- University campus converted to outpatient center with rehab services

Case in Brief: CHRISTUS Health

- 40-hospital health system headquartered in Irving, Texas
- Consolidating two campuses in Southeast Texas by converting 220-bed St. Mary Hospital to a short-stay facility and moving inpatient services to 500-bed St. Elizabeth Hospital

Source: Health Care Advisory Board interviews and analysis.

©2015 The Advisory Board Company • advisory.com • 314728
Refocusing on Core Community Needs

Community Needs Health Care, Not Beds

Outpatient Center Sufficient to Provide Care to Webster Residents

"We saved health care for a community that actually needed it. The hospital, however, didn't need the inpatient beds anymore."

Ed Moore
President and CEO
Harrington HealthCare System

Case in Brief: Harrington HealthCare System

- 113-bed regional hospital headquartered in Southbridge, MA
- Acquired struggling critical access hospital in Webster, MA, converted facility to outpatient center to provide patients access to necessary care needs without leaving local market

Overcoming Common Barriers to Conversion

Key Flashpoints in Conversion Process

Stakeholder Concerns
Community Backlash
Patient Concern with Disruption to Care
Finding New Roles for Displaced Staff Members

Stakeholder Engagement
Communication Strategy
Logistics Planning
Staff Transitions

Mitigate conflicts with boards, donors, local and state governments, physicians by showcasing new service offerings
Proactively engage staff, community leaders, unions, and media
Determine how to provide undisrupted service to community throughout closure
Transition staff to new roles within system
What Do These Companies Have in Common?
Separation of Real Estate and Operations the Norm in Other Industries

Business Operators

Asset Owners

Source: Health Care Advisory Board interviews and analysis.

Staking a Claim in Hospital Properties

REITs¹ Entering Acute Care Space

Recent REIT Acquisitions of Hospitals

Ventas and Ardent Medical Services
- Top ten for-profit hospital operator in attractive markets
- Strong nucleus of high-quality real estate with growth potential

Medical Property Trust and Capella Healthcare
- Improves Capella’s cash position and credit profile
- Capital backing for future investment opportunities

Case in Brief: Ventas and Ardent Medical Services
- Ventas Inc. acquired Ardent Medical for $1.75 B in April 2015
- Ventas will own 10 hospital properties and separate operations into entities run by Ardent

Case in Brief: Medical Property Trust and Capella Healthcare
- Medical Property Trust acquired Capella for $900 M in July 2015
- Operations of the 11 hospitals will be jointly managed by both the REIT and Capella’s senior management

¹) Real Estate Investment Trusts.

Investing in Low-Cost Care Site Alternatives

9. Micro-hospital development
10. Hospital-without-beds deployment
11. Sub-acute facility substitution
12. Hospital-at-home strategy

Outmigration of Care Continues at a Steady Pace

Impact of Market Shocks on Major Hospital Service Lines

<table>
<thead>
<tr>
<th></th>
<th>HOPD Imaging</th>
<th>Cardiac</th>
<th>Neurosciences</th>
<th>Orthopedics</th>
<th>Surgery</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technology Innovation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increased Consumerism</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shift Towards Population Health</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rise of Competitors</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5-Yr Growth Rate for Outmigration¹</td>
<td>7.3%</td>
<td>12.3%</td>
<td>20.4%</td>
<td>1.1%</td>
<td>11.6%</td>
</tr>
</tbody>
</table>

¹ Represents outmigration to non-hospital outpatient providers.

Source: Health Care Advisory Board interviews and analysis.
Unbundling the Hospital Asset

Type of Service

1. Micro-hospital development
2. Hospital-without-beds deployment
3. Sub-acute facility substitution
4. Hospital-at-home strategy

The last thing we wanted to do was build another giant hospital in this market... However, we were not located in this very fast growing community, and we wanted to provide more full-service care and establish a beachhead rather than just have an ambulatory surgery center.”

SVP and Chief Strategy Officer, Integrated Delivery System in the West

Typical Facility Options Insufficient for Growth

Micro-hospitals a Sweet Spot for Investments

Spectrum of Investments

Traditional Ambulatory Centers

Advantages
- Low construction and overhead costs
- More flexibility in staffing model

Disadvantages
- Only offers low-acuity services
- Highly competitive market

Full-Scale Hospitals

Advantages
- Comprehensive range of service offerings
- Core competency of health system

Disadvantages
- High construction and overhead costs
- Insufficient demand to support all services
9. Micro-hospital development

Micro-Hospitals Offer Smaller Acute Care Footprint

Key Features of Micro-Hospitals

<table>
<thead>
<tr>
<th>Core</th>
<th>Optional</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emergency Services</td>
<td>Imaging</td>
</tr>
<tr>
<td>Lab Services</td>
<td>Pharmacy</td>
</tr>
<tr>
<td>Primary Care</td>
<td>Women's Services</td>
</tr>
<tr>
<td>Outpatient Surgeries</td>
<td>Dietary Services</td>
</tr>
</tbody>
</table>

Typical micro-hospital bed size: 8-10
Range of square footage for a micro-hospital: 15,000-50,000

Organizations Investing in Micro-Hospitals

SCL Health
Baylor Scott & White Health
Trinity Mother Frances Hospitals and Clinics

SCL Health Opens Four Micro-Hospitals

Entering a New Market with a Smaller Facility

Micro-Hospitals Expand Presence in Growing Market

*SCL Health’s Denver Presence*

Services in SCL Health’s Micro-Hospitals

- Physician, Ancillary Services
- Surgical Suites
- Lab Services
- Inpatient Beds

Case in Brief: SCL Health

- Nine-hospital health system headquartered in Broomfield, Colorado
- Opening four 8-bed micro-hospitals through a joint venture with Emerus Holding
- Micro-hospitals staffed 24/7 with board-certified emergency physicians and nurses

Hospital-Without-Beds Meeting Consumer Needs

Designing a Destination for Ambulatory Surgery and Specialty Care

**Facility Overview**
- 12-story, 280,000 sq-foot multi-specialty ambulatory care center
- Offers patients primary and specialty care visits, diagnostic imaging, ambulatory surgery, full-service pharmacy
- Larger surgical capacity than many traditional hospitals
- Space for interdisciplinary care

**Expanded Patient Access**
Regional destination for ambulatory surgery, increasing access for outpatient, inpatient surgeries

**Better Care Coordination**
Ability to easily coordinate care due to co-location of services

**Case in Brief: Montefiore Health System**
- Opened 12-story, 280,000 sq. ft. multi-specialty ambulatory care center in Bronx, New York
- Offers a range of services in one location, including 12 ORs, four procedure rooms, imaging, subspecialty services

Other Sites Potentially Better Suited for Medical Admissions

**Substitution of Acute Care Increasingly Necessary**

**Factors Enabling Shift to Sub-Acute Facilities**
- **Payment Reform**
  Increasingly more pressure to control costs, avoid high-cost inpatient settings

**Traits of Patients Best Suited for Sub-Acute Care**
- Multiple medical problems, primarily needing clinical supervision
- Requiring short-term rehabilitation to recover from an injury or illness


Source: Health Care Advisory Board interviews and analysis.
Montefiore Makes Significant Investment in Care Outside Acute Setting

Montefiore’s Strategic Partnership with Burke Rehabilitation Hospital

Montefiore and Burke Partnership

- Prior relationship involved referrals for neurological, orthopedic, and cardiopulmonary rehabilitation
- Now Montefiore and Burke jointly develop cross-institutional care pathways
- Montefiore clinicians help advance new capabilities in traumatic brain injury, cancer, and other high-acuity medical conditions

Case in Brief: Montefiore Health System

- Health system headquartered in Bronx, New York
- Announced strategic partnership with nationally recognized Burke Rehabilitation Hospital in August 2015; Burke the only center in Westchester County dedicated exclusively to rehabilitation medicine
- Montefiore plans to use rehab facility as means for managing lower-acuity medical patients

Hospital-at-Home Avoids Hospital Stay Altogether

Johns Hopkins Spearheads Innovative Care for Elderly Patients

Hospital-at-Home Team Treats and Monitors Patient

<table>
<thead>
<tr>
<th>Targeted Conditions</th>
<th>Diagnostic Testing</th>
<th>Infusion Therapies</th>
<th>Basic Home and Personal Care</th>
<th>24/7 Access to Nurse</th>
</tr>
</thead>
</table>

Case in Brief: Johns Hopkins University Schools of Medicine and Public Health

- Model pioneered at 1,059-bed Academic Medical Center in Baltimore, MD
- Patients over 65 years old invited to participate in Hospital at Home program from emergency department or outpatient clinics
- Patients transported to hospital for procedures like MRIs that can’t be conducted at home

Patients Treated in Hospital v. Patients Treated at Home

1.7 days
Reduction in average length of stay

$2,399
Reduction in average cost per patient

15%
Percentage point reduction in delirium for patients treated at home

Source: Health Care Advisory Board interviews and analysis.

Source: Laff, B., et al., “Hospital at Home: Feasibility and Outcomes of a Program to Provide Hospital-Level Care at Home for Acutely Ill Older Adults,” Annals of Internal Medicine, 143, no. 11 (2005): 798-808; Health Care Advisory Board interviews and analysis.
Funding a Hospital-at-Home Program

Presbyterian Uses Health Plan to Fund Home-Based Initiative

**Health Plan Facilitates Funding**
- Physician fees
- Ancillary costs for oxygen, diagnostic tests
- Costs of equipment such as IVs average $331 per patient

**Case in Brief: Presbyterian Healthcare Services**
- Integrated delivery system headquartered in Albuquerque, New Mexico
- After program enrollment, patients are transferred home with medications and equipment
- Patients must be covered by Presbyterian’s health plan and live within 15 miles of a Presbyterian Hospital
- Dedicated care team of nurses, aides, physicians, and social workers conduct daily visits

**Significant Cost Savings**
$1,000-2,000
Reduction in variable costs per hospital at home stay versus comparable inpatient stay

Funding a Hospital-at-Home Program

**New Care Site** | **Advisory Board Assessment**
---|---
**Micro-hospital development** | Lower-cost growth model for new markets; though higher cost than a freestanding ED, provides wider array of services and additional support for acute care needs

**Hospital-without-beds deployment** | Best focused on dense urban or suburban markets with high demand for ambulatory services

**Sub-acute facility substitution** | Organizations may supplement preferred partner networks with joint ventures for sub-acute facilities for a limited set of clinical conditions or can use them as a low-cost site for low-acuity medical needs

**Hospital-at-home strategy** | Though demonstrating promising clinical results, the model is not widely reimbursed and this care model is best utilized through provider-owned health plans or through institutions taking full delegated risk
No Single Path to Acute Care Sustainability

Consider Applicability and Potential Savings

Hospital of the Future Decision Guide

<table>
<thead>
<tr>
<th>Pursue Pilots</th>
<th>Implement Aggressively</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multi-provider clinical partnerships</td>
<td>Unified acute care service distribution strategy</td>
</tr>
<tr>
<td>Flexible facility design principles</td>
<td>Principled service rationalization</td>
</tr>
<tr>
<td>Patient-oriented transfer centers</td>
<td>Gradual bed reduction</td>
</tr>
<tr>
<td>Micro-hospital development</td>
<td>Hospital campus conversion</td>
</tr>
<tr>
<td>Asset ownership exit strategy</td>
<td>Hospital-at-home strategy</td>
</tr>
<tr>
<td>Hospitals-without-beds deployment</td>
<td>Sub-acute facility substitution</td>
</tr>
</tbody>
</table>

Potential Applicability

Deploy Cautiously ➔ Target Selectively

Relative Cost Savings
Our Leadership Challenge

Proving Our Value a Necessary Ambition

Overcoming Three Key Challenges

**Determine Business Strategy**
Adopting business ambition that supports long-term system success and provides strategic compass

**Engage Stakeholders Proactively**
Communicating strategy and engaging community members, boards, donors, and patients through process minimizes disruption and pushback

**Ensure Seamless Execution**
Following through on difficult and contentious decisions ensures long-term viability of health care enterprise

©2015 The Advisory Board Company • advisory.com • 31472B

Source: Health Care Advisory Board interviews and analysis.