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HOW 10 FORCES ARE CHANGING HEALTHCARE DESIGN*

* An update by the authors of “The Future Is Now”, published in the March 2011 issue of Health Facilities Management magazine

The Future Is Now --- Redux
The American College of Healthcare Architects provides certification for architects who practice as healthcare specialists throughout the United States and Canada.

ACHA is the first specialty certification program to be recognized by the American Institute of Architects and is a proud partner with ASHE in providing high-level educational content.

Part One

10 Forces Influencing the Industry

. . . shaping trends to follow
Alarming fall in reimbursements

**March 2011 Report**
- Continuing downward pressure on Medicare reimbursement will likely narrow operating margins.
- Eventually these margins may prove inadequate for a break-even operation.
- Pressure will exist for commercial payors to lower rates to the Medicare standard.
- As a result of increasingly scarce excess revenues, capital may be harder to access, or even unavailable.

“At Medicare rates (only), hospitals would be challenged to remain open”

Source: Ken Kaufman, AAH/ACHA SLS, July 2010

**July 2013 Update**
- In 2011, we concluded that, “The status quo is unsustainable, irrespective of the final political refinement of the ACA.”
- And what we thought --- is now the law.

---

Health-care providers to see big impact from reimbursement cuts

“In the latest [Premier] survey, 48 percent of the respondents anticipate that reimbursement cuts will have the greatest impact on their business during the year ahead.”

“... Medicare reimbursements already fall short of what it costs to provide care. On average, inpatient reimbursements fall 5.8 percent shy of actual costs, while outpatient procedures fall 10 percent short...”
Alarming fall in reimbursements

“Cone Health will lay off about 150 workers during the next three months to fulfill a plan to cut a total of 300 positions from its 10,000-member work force as it works to close a $30 million budget gap this year . . .”

“. . . put the blame largely on decisions made by federal and state legislators that are impacting hospital revenues. Among those blows or potential blows to hospital finances are the state’s decision to not expand Medicaid eligibility and a proposal that would phase out sales tax rebates for nonprofits, including hospitals . . .”

. . . although not everyone is feeling the pain . . .
Focus on transparency and quality

2

March 2011 Report

☑ Expect payment disincentives for preventable hospital admissions and readmissions, as well as for avoidable adverse health outcomes, the so-called “never events” list.

☑ This will probably lead to a reassessment and reinvention of the overall patient process and experience and suggests continuing downward pressure for an average length of stay (ALOS) to be reduced to generally-accepted best practices.

July 2013 Update

☐ Again, what we thought --- is now the law.

☐ And --- consumer access to information is growing at a rapid pace.

“Because consumers have been slow to make use of health care quality reports, it remains to be seen if price information will be enough of a hook to engage them in comparison shopping for care.”

The Commonwealth Fund, Quality Matters Health Care Price Transparency: Can It Promote High-Value Care?, April/May 2012
Focus on transparency and quality

“In a fee-for-service environment, pushing people to the pricier technology may have made sense. Competition between systems over who has the best technology at least had an internal marketing logic. But as payers move toward rewarding high-value care and providers assume more financial risk for their patients, that logic no longer applies. Perhaps the time has come for competing systems to engage in their own START talks to end the medical arms race.”

Source: Merrill Goozner, June 29, 2013, ModernHealthcare.com

ACA incentives for “quadrants” of quality care delivered

- Lower quadrant has penalty --- with their loss going to a bonus to top quadrant

- . . . predicting a paradigm shift . . . actually, a lot of paradigm shifts . . !
Focus on transparency and quality

“Never” or “Sentinel” events (see chart at right): Reimbursement is already at stake.

But how will we address a statistical distinction with no clinical difference?

When everyone is performing at a high level, is it appropriate to penalize those in the bottom quadrant?

- e.g. historic law school grading

Sentinel events most frequently reported* to The Joint Commission

<table>
<thead>
<tr>
<th>Type of sentinel event</th>
<th>Number of reports</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wrong-site surgery</td>
<td>867 (13.5%)</td>
</tr>
<tr>
<td>Suicide</td>
<td>770 (12.0%)</td>
</tr>
<tr>
<td>Op/post-op complication</td>
<td>710 (11.0%)</td>
</tr>
<tr>
<td>Delay in treatment</td>
<td>356 (6.3%)</td>
</tr>
<tr>
<td>Medication error</td>
<td>529 (8.2%)</td>
</tr>
<tr>
<td>Patient fall</td>
<td>466 (6.3%)</td>
</tr>
</tbody>
</table>

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3 Importance of information technologies

March 2011 Report

- “Meaningful use” of EHR predict their greater use in measuring performance in the healthcare system.
- The patient-centered medical home (PCMH) model uses EHRs to link primary care with the remainder of an integrated care system.
- Just as electronic delivery of information, “eHealth”, permits a transition from paper-based records to the EHR, there is growing evidence that “mHealth” will supersede it using mobile communication devices, such as mobile phones and PDAs, for health services and information.

July 2013 Update

- IT is a blended world
  - Information technologies
  - Healthcare technologies
  - Building technologies
  - Merged provider systems
- IT has a new priority: quality
  - Historically about billing and EMR
  - Conversion is a challenge
- IT requirements GROWING

17-20 terabytes: Entire Library of Congress

Kaiser Permanente IT

- 9 companies, 27 divisions (equivalent)
- 453 facilities w/ 203,000 desktops
- 173,000 MDs and employees

4700 terabytes of information, and increasing

From a 2008 presentation to the ACGME by Malcolm/ Lewis on the Kaiser Permanente IT
Source: Ms Christine Malcolm, presentation to 2010 AIA-AAH/ ACHA Summer Leadership Summit

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3 Importance of information technologies

- 1956 - IBM invents the computer - 1 gigabyte of storage cost $10,000,000 or $10m/gigabyte
- 1990 - 1 gigabyte of storage cost $10,000 which is a 3 order of magnitude decrease (1000X) or $10,000/gigabyte
- 2000 - 1 gigabyte of storage cost $10 which is a 3 order of magnitude decrease (1000x) or $10/gigabyte
- 2010 - 1 gigabyte of storage cost $.01 which is a 3 order of magnitude decrease (1000x) or $.01/gigabyte

Source: Jim Cappiello, Genesis Planning

1 Source: Jim Cappiello, Genesis Planning, webinar presentation March 29, 2013
Source: Yossi Bahagon, MD, Clalit Health Services, Israel, presentation for the International Academy for Design and Health, Helsinki, Finland, September 20, 2012, posted July 19, 2012 on Telecare Services Association, originally reported in Mobi Health News.
3 Importance of information technologies

- Not directly addressed in our 2011 report
- The Law of Disruption: social, political, and economic systems change incrementally, but technology changes exponentially.

Source: Larry Downes, Forbes, January 12, 2013

- ... and we’ll address the impact of this a little later ...
“With the evidence that about 30% of U.S. health-care expenditures add little value for patients ... training more physicians isn’t the best way to address our problems. It’s like putting more captains aboard a sinking ship.”

Robert M. Wachter is professor and associate chairman of the Department of Medicine at the University of California, San Francisco, and chair of the American Board of Internal Medicine. He is the author of a textbook on patient safety, “Understanding Patient Safety,” and blogs at www.wachtersworld.org.

Staffing shortages and reassignments

- The Shortage continues:
  - MD distribution & numbers
    - 25% primary care, 4.8% rural areas
  - MD Grad Med Education financial support flawed
    - $10 Bill Medicare
    - $3 Bill Medicaid
  - MD compensation model offers reverse rewards
  - Underutilized APRN (Adv. Pract. RNs)
  - Intro “medical clerical specialists”

But is this really a crisis?

Yes, the statistics are daunting, but are we using the correct quantifiers?

“What would happen if . . . we looked for ways to change the ending without necessarily changing the facts?”

“Most estimates are based upon simple ratios . . .”

Perhaps we need to shift our thinking from the current paradigm of care management.
4 Staffing shortages and reassignments

- And . . .
- “The theory goes that with 32 million previously uninsured Americans joining the rolls of the insured, there will be a need for facilities to house physicians and services to treat them.
- It’s a mistake, by the way, to believe these 32 million people haven’t been treated in the past.
- Many have sought and received care in hospital emergency rooms, where federal law prohibits refusal of care on the basis of inability to pay.”

Jean-Claude Saada, Facility Obsolescence – A Welcome Casualty of Health care Reform?

5 Migration of care away from the facility

March 2011 Report
- Just as eHealth and mHealth will permit more efficient delivery of care inside the hospital, they will perhaps be of greatest long-term impact outside the hospital.
- The marketplace has grown accustomed to movement of primary care into retail settings.
- Intel’s Digital Health Group leads a well-refined effort to provide viable “aging in place” settings.
- The Garfield Center of the Kaiser Permanente organization is exploring the use of Wii™ micro-technologies.

July 2013 Update
- Personal healthcare, e-health, virtual-health, home health, tele-health, m-health
- Prospective medicine:
  - Predictive
  - Preventive
  - Personalized
  - Participatory
  - Focused on pre-disease
- Key question: is a facility needed to help an individual achieve health?

Source: RADM Bill Rawley, Clinical Medicine in 2038, Webinar 1/14/13
5 Migration of care away from the facility

“Patient visits to retail health clinics quadrupled between 2007 and 2009”

- 4th largest pharmacy in US
- 150 retail clinics (behind CVS and Walgreens)
- Health insurance Sam’s Club
- Health and Wellness: (2011)
  - 11% Walmart
  - 5% Sam’s Club
- Plan: health insurance exchange = ACCESS

Source: Walmart clinics, health insurance, sales plan shows retailer’s rising interest in health care business, by Jeffrey Young, The Huffington Post, 1/17/2013

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5 Migration of care away from the facility

- Wal-Mart in healthcare? (1)
  - 400 clinics few years (extreme referral potential!)
  - $4 generic drugs (shoppers saved $1 billion)
  - Optometry centers: 6 million patients
  - 130 million shoppers every week
  - World #1 retailer, 8,400 stores (2)

- Main servers: all on the Internet – X2! (1)

Source: 2 Answers.Com, Wal-Mart Stores Inc.

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5 Migration of care away from the facility

- Walmart healthcare by the numbers:
  - Goal: 400 clinics by 2011; 2000 by 2014
  - Each store: 1.7 million shoppers per year
  - Break even on clinic: 11,000 visits (7/10 x 1%)

- Volume: 2000 clinics @ 11,000 visits = 22 million
- Needing specialty referral: 10% (2.2 million)
- Referral value: $1,000 = $2.2 BILLION

Source: John Goodman review of Ron Galloway speech, What will Walmart Health Care look like?, Feb. 23, 2010

Obsolescence and poor location of assets

March 2011 Report

The current supply of medical care beds are not where the projected demand for those beds will be in the coming decades.

But that's presuming the current paradigm of care settings!

July 2013 Update

Bottom-ranking hospitals in a Consumer Reports quality survey cluster around metropolitan areas, suggesting that they face special challenges (August 2012).

Major urban medical centers need to replace aging assets dating to the 50s and 60s --- they have no choice.

Obsolescence and poor location of assets

Hospitals lose $8.3 billion using old technology

Clinicians waste 46 minutes per day waiting for patient info due to inefficient technology

There is a cost of doing nothing.
7 Changing medical model

March 2011 Report

☑ If all reimbursement (including commercial payors) went to the Medicare standard, many if not most hospitals couldn’t stay open.

☑ Only a few of the largest systems would survive; others would be cannibalized or absorbed for volume to cover overhead and fixed costs.

☑ The future of smaller (independent) organizations is uncertain and probably not viable. Therefore, the amount of capital investment in independent community hospitals will likely remain greatly diminished.

July 2013 Update

☑ Personalized medicine has the potential to change the way that medicine is prescribed, and it could provide more targeted, efficient care with better outcomes for patients, ultimately leading to lower costs for everyone involved. Source: Smart Business, January 2012

☑ Elements of the Affordable Care Act function as a rezoning effort, allowing and encouraging development of new health care structures. Among these structures is the Patient-Centered Medical Home (PCMH). Source: S. Sanford, UW School of Law, November 2012

☑ . . . and the impact of genomics

7 Changing medical model

☑ Headline: Scientists find treatment to kill every kind of cancer tumor

So far in mice, human:

☑ Breast, Ovary, Colon, Bladder, Brain, Liver, and Prostate tumors!

☑ What impact would this pill have on your facilities?

Source: Michael Blaustein, New York Post, March 27, 2013
Wal-Mart announced that employees who needed certain pricey surgeries would have the option of traveling to one of the six best hospitals in the country that specialize in those procedures.

A second element is hospital payments. Instead of the usual arrangement, where insurance companies reimburse providers à la carte for various services, the travel-surgery programs are based on a flat fee for all the care involved in a procedure.

Lowe's --- with 200,000 covered individuals --- has a similar contractual relationship.

What if your community's largest employer were to bypass your organization --- and your (prior) direct competitor --- and send high value patients hundreds of miles away?

Kevin Vigilante, Booz/Allen/Hamilton, July 2013
Greater emphasis on health vs. medicine

March 2011 Report
- The 3 risk factors of tobacco, activity, and diet will play increasing roles in the focus of the health care delivery system and of the facility response to that system.
- Our children's generation is the first in American history to have a shorter life expectancy due to obesity and related diseases.

July 2013 Update
- In the life cycle of public health eras, we have arrived at the one focused on health.
- Chronic diseases are a pandemic throughout the US.
- Chronic diseases are lifestyle diseases with 50% of risk factors modifiable.
- Emphasis on health/quality outcomes compatible with fee-for-service?

Lack of accountability is a popular concept

- If I become infected: kill the infection
- If I might be infected/injured: protect me
- If I break something: effect repair
- If I am acting foolishly: leave me alone
- If I confuse you: figure it out.
- Whatever: don’t ask me to be involved

Chronic diseases:

- 81% Hospital admissions
- 76% Physician visits
- 91% Prescriptions
- 75% Spending on healthcare ($2+ trillion)
- 96% Medicare spending (elderly)
- 84% Medicaid spending (poor)

Source: Prevention and Wellness, Partnership to Fight Chronic Disease
Deaths from infectious diseases; maternal and perinatal conditions; and nutritional deficiencies combined are projected to decline by 3% over the next 10 years. However, over the same period, deaths due to chronic diseases are projected to increase by 71%.


Daily Medical Expenditures in the U.S.:

1. Heart Disease  $501,000,000
2. Cancer       $430,000,000
3. Digestive Disorders  $337,000,000
4. Obesity      $320,000,000
5. Diabetes     $273,000,000

In these 60 minutes, the U.S. expenditure will be:  $119,208,332

And DEMENTIA:  $1,000,000,000

Source: RAND corp./ US NIH 2000  (From the work of Mark Haynes, DC, Norfolk, VA, 2011.)
Source: Ruth Bettelheim, America can’t afford to neglect dementia care, USA Today, March 16, 2011
**Force 8**

**Greater emphasis on health vs. medicine**

**If, with exercise:**

- Prevent 91% of cases, type 2 diabetes
- Prevent 50% of all cases, heart disease
- Prevent 50% of all stroke deaths
- Reduce site specific cancers by 50-72%

*What would happen to your facility...?*

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*Source: Mike Evans, MD, video, 33 1/2 hours: what is the single best thing we can do.*

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8 Greater emphasis on health vs. medicine

- Clinical manpower debates of supply and demand will add distribution and specialty to the assessment
- Baby Boomers will dominate market behaviors and economic forces
  - Technology competence
  - Chronic disease burden for system
- Consumers will wrestle with conflict of individual choice and group responsibility

9 Demographics in the marketplace

- March 2011 Report
  - Shortages of MDs and RNs, as well as those of other highly-skilled professionals, negatively impact care not only in hospitals but also in long term care, ambulatory care, and a broad range of other settings.

- July 2013 Update
  - Clinical manpower debates of supply and demand will add distribution and specialty to the assessment
  - Baby Boomers will dominate market behaviors and economic forces
  - Technology competence
  - Chronic disease burden for system
  - Consumers will wrestle with conflict of individual choice and group responsibility
“At this point, more than 10,000 Baby Boomers are reaching the age of 65 every single day, and this will continue to happen for almost the next 20 years.”

Source: Michael Snyder, Do You Want to Scare a Baby Boomer?, Jan 17, 2013.

Demographics in the marketplace

Boomers

- Situation:
  - 25% of 46-64 yr. olds no retirement savings
  - 1 of 6 seniors below poverty
  - 40% work “until they drop”
  - 1991-2008, age 65-74, bankruptcy rose 178%
    - Medical bills big factor 60%
    - 75% had health insurance
  - SS: $134 Trillion, next 75 yrs.
  - Medicare: unfunded liability of $38 Trillion, next 75 yrs., $328,404 every US household

Source: Michael Snyder, Do You Want to Scare a Baby Boomer?, Jan 17, 2013.

Non-compliance/ Non-adherence

Health literacy:

- 33% patients marginal/ inadequate
- 42% misunderstood directions for meds
- 25% misunderstood schedule for follow-up
- 60% misunderstood informed consent (story)

Demographics in the marketplace

Non-compliance/ Non-adherence

Failure to comply with treatment regimens

- Up to 40% failure rates
- Up to 70% failure rates if lifestyle/ habit changes


User behavior w/ mobile health apps

- After 1 day: 38% stop using the app
- After 1 week: 50% stop using the app
- After 6 months: 90% stop using the app

Source: Yossi Bahagon, MD, Clalit Health Services, Israel, presentation for the International Academy for Design and Health, Helsinki, Finland, September 20, 2012
Forces Changing Healthcare Design July 22, 2013

10 Forces Changing Healthcare Design

Healthcare linkage to national security

March 2011 Report

☑ All nations are vulnerable to one sector of the economy growing too big and causing economic instability.

☑ In the US, some health economists believe the window of imbalance is when any one sector reaches 20-25% of the GDP --- and healthcare as a percent of GDP is nearing 18%.

July 2013 Update

Q What will it take for the public to take responsibility for their own health, to get involved in healthy behavior in order to reduce the demand for medical care?

A They must first understand that their individual freedom is at stake!

Source: Ken Krakaur, Sr. Vice President, Sentara

Healthcare Spending in the U.S. as Percentage of Gross Domestic Product

Source: National Health Expenditures, Centers for Medicare and Medicaid Services, Office of the Actuary – projection include impacts of the Affordable Care Act

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This situation is *time sensitive*:

Every nation has a different tipping point!

From the work James Orlikoff, Orlikoff & Associates, Inc. and National Advisor on Governance and Leadership to the American Hospital Association

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... resulting from the aforementioned forces

Part Two 6 Trends
. . . so what does this have to do with health facilities? . . . EVERYTHING

Trend 1: The “Health Continuum”

“The function of protecting and developing health must rank even above that of restoring it when it is impaired.”

- “Architecture for Health” no longer means designing a healthcare facility; it refers to a design continuum.
- When population health is the measure of success, a disease treatment system will no longer be sufficient.
- Health facilities will need to address that full spectrum of care settings.
**Trend 2: Focus on Outcomes, Health**

- **Priority shifts**
  - Quantity → Quality
  - Medicine → Health
  - New construction → Asset life extension

**FACILITY IMPLICATIONS**

- Operational efficiency
  - Clinical staff to their competence limit
  - Facilities only when necessary
- Systems operational modeling
- Contributing to quality (stats)

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**Trend 3: Personal Accountability**

- **Estimates have shown:**
  - 70+% of cardiovascular disease deaths
  - 40% of chronic respiratory disease deaths
  - 34% of cancer deaths
  - 50% of all chronic disease deaths
  - are attributable to a small number of known modifiable risk factors.

**FACILITY IMPLICATIONS**

- Accountability interface
- Incorporating lower utilization
- Repurposing as “salt” (when?)
- Catering to Boomer technology (in)competence

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Dr. Gerald Potzsch, Philips Healthcare Nordic
Presentation 9/20/2012 in Helsinki, Finland
International Academy for Design and Health

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Dr. Howard Hendricks, Dallas Theological Seminary, Seven Lessons of the Teacher

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Trend 4: New Roles & Partnerships

- The new Facilities Manager
  - From the Boiler room to the Board room
- New relationship with the design community
- The FM conversation broadens: as integrator
  - of health systems and of diverse information

FACILITY IMPLICATIONS

- Performance vs. Prescriptive
- Reduced emphasis on facility name/ type
- Environments that support care (home?) and the mission of better health

Richard Jackson, MD, MPH, HonAIA, UCLA School of Public Health

Trend 5: Continued Consolidation

- Larger healthcare systems due to
  - Mergers and acquisitions
  - Capitation
  - Bundling
  - Economies of scale
- 50 systems in 10 years
  - Shift toward retail: Are Wal-Mart, Target, and Walgreens among those?
  - Offering their own insurance exchange; portable across the country

FACILITY IMPLICATIONS

- The big get bigger and the small get smaller

Pentecost and Bardwell, Health Facilities Management, March, 2011
Trend 6: Doing Even More with Less

- The end of “better, faster, cheaper”? That’s a dead-end; you’ve just backed your health system into a corner.

**FACILITY IMPLICATIONS**

- New Priorities
  - Asset life extension
  - Life-cycle cost vs. first-cost only
  - Flexibility; anticipation of future adaptive reuse

- Be sure that you’re asking the right question . . . because questions that involve “better, faster, cheaper” may lead to the wrong answer.

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Recap

10 Major Forces . . .

. . . and 6 Major Trends Resulting from those Forces
10 Major Forces

| Force 1: Alarming fall in reimbursements |
| Force 2: Focus on transparency and quality |
| Force 3: Impact of information and disruptive technologies |
| Force 4: Staffing shortages and reassignments |
| Force 5: Migration of care away from the facility |
| Force 6: Obsolescence and poor location of assets |
| Force 7: Changing medical model |
| Force 8: Greater emphasis on health vs. medicine |
| Force 9: Demographics in the marketplace |
| Force 10: Healthcare linkage to national security |

6 Trends Resulting from those Forces

| Trend 1: The “Health Continuum” |
| Trend 2: Focus on Outcomes, Health |
| Trend 3: Personal Accountability |
| Trend 4: New Roles & Partnerships |
| Trend 5: Continued Consolidation |
| Trend 6: Doing Even More with Less |

All predicting the need for . . . . . . . an integrated approach
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