How 2nd Curve Practice Will Bend the Health Care Cost Curve

The Tenth National QUALITY COLLOQUIUM on the Campus of Harvard University

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“At this point, we can’t afford any illusions (re: health care): the system won’t fix itself, and there’s no piece of legislation that will have all the answers, either. The task will require dedicated and talented people in government agencies and in communities who recognize that the country’s future depends on their sidestepping the ideological battles, encouraging local change, and following the results. But if we’re willing to accept an arduous, messy, and continuous process we can come to grips with a problem even of this immensity. We’ve done it before.”

- Atul Gawande, MD. “Testing, Testing,” The New Yorker, 12/14/09
Is Health Care Now Experiencing a “Perfect Storm” of Forces for Change?

1. **Ongoing crisis over quality/patient safety**

2. **Uncontrolled cost escalation**, with US international competitiveness at stake, employers at a breaking point, and patients bearing more costs, driving them from the insurance market as it exists today

3. “Health Care Reform’s” commitment to finally address the historical issue of inequality of access to care.

4. Relentless movement toward transparency, combined with maturation of P4P concepts and practices
THE SECOND CURVE

Managing the Velocity of Change

- Anticipate the pace of change
- Identify your company's new direction
- Know when to jump onto the second curve

IAN MORRISON
President of the Institute for the Future
Our 1\textsuperscript{st} ⇒ 2\textsuperscript{nd} Curve Journey

- 1\textsuperscript{st} Curve: Where did it come from, and how is it failing?
- What is 2\textsuperscript{nd} curve health care?
- How Does 2\textsuperscript{nd} Curve Practice “Bend the Cost Curve”??
- Leadership
“The most important event in the history of American and Canadian medical education”

MEDICAL EDUCATION
IN THE
UNITED STATES AND CANADA

A REPORT TO
THE CARNEGIE FOUNDATION
FOR THE ADVANCEMENT OF TEACHING

BY
ABRAHAM FLEXNER

WITH AN INTRODUCTION BY
HENRY S. PRITCHETT
PRESIDENT OF THE FOUNDATION

(And the birth of health care’s “1st Curve”)
"... for the first time in human history, a random patient with a random disease consulting a doctor chosen at random stands a better than 50/50 chance of benefitting from the encounter."

Harvard Professor L. Henderson

2 Historical Curves of Health Care Innovation
(derived from Kuhn, Toffler, Morrison, Merry)

First Curve/
4 sigma

Future Performance
(Second Curve/
6+ Sigma)

(Craft+Information-Age Culture)

(Bifurcation curve: 2011)

(Craft-Age Culture)

Circa 1910

Time ➔ ➔ ➔ ➔ ➔ ➔ ➔ ➔ ➔ ➔ ➔ ➔

"Crossing the Chasm" ➔
1\textsuperscript{st} Curve Health Care’s Performance Problem

<table>
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<th>Defects per million</th>
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<tr>
<td>1</td>
<td>690,000</td>
</tr>
<tr>
<td>2</td>
<td>308,000</td>
</tr>
<tr>
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<tr>
<td>5</td>
<td>230</td>
</tr>
<tr>
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<td>3.4</td>
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1\textsuperscript{st} Curve Health Care (Craft Culture)

<table>
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<tr>
<th>Percentage OK</th>
<th>Defects per million</th>
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<tr>
<td>90% OK</td>
<td>100,000</td>
</tr>
<tr>
<td>95% OK</td>
<td>50,000</td>
</tr>
<tr>
<td>99% OK</td>
<td>10,000</td>
</tr>
</tbody>
</table>
What does this really mean?

"If you were admitted to hospital tomorrow in any country... your chances of being subjected to an error in your care would be something like 1 in 10. Your chances of dying due to an error in health care would be 1 in 300," Liam Donaldson, the WHO's newly appointed envoy for patient safety, told a news briefing.

This compared with a risk of dying in an air crash of about 1 in 10 million passengers, according to Donaldson, formerly England's chief medical officer.

"It shows that health care generally worldwide still has a long way to go," he said.
The *INEVITABLE* consequence managing highly complex health care with a 2-4 sigma quality infrastructure

Medical errors as 5\(^{th}\)-8\(^{th}\) leading cause of death in US

44,000 – 98,000 deaths annually
The Disturbing Case of the Cure That Killed the Patient

A death at a Boston hospital raises the question, Are frazzled doctors making too many fatal mistakes?

By CHRISTINE GORMAN

If ANYONE KNEW HOW TO GET THE BEST medical treatment, it was Betsy Lehman. A health columnist who had worked at the Boston Globe since 1982, she had covered everything from leading-edge research to the finer points of a physician’s bedside manner. When she learned she had an advanced case of breast cancer, she carefully studied her options and chose to undergo an experimental treatment offered at the Dana-Farber Cancer Institute, a prestigious hospital affiliated with Harvard Medical School. Tragically, the 39-year-old mother of two died in December. It was as a front-page story in the Globe disclosed last week, her death was not the result of her disease. The cause was a huge overdose of a powerful anticancer drug accidentally administered by the hospital’s staff.

Lehman’s case is just one of a spate of medical foul-ups that have made headlines in recent weeks. In two Florida incidents, a doctor amputated the wrong foot of a diabetic man, and a hospital worker mistakenly turned off a stroke victim’s breathing machine. In Michigan, a surgeon during a mastectomy removed a woman’s healthy breast instead of the diseased one. Are these isolated, horrifying events? Or could they be harbingers of a deadly trend?

Though no statistical evidence shows that malpractice is on the rise, state licensing boards have stepped up their investigations of doctors. According to Public Citizen’s Health Research Group, the number of physicians who have had their licenses revoked, suspended or restricted rose from 1,974 in 1992 to 2,300 in 1993, an 11% increase.

Still under intense investigation, Lehman’s death appears to have resulted from a mathematical error that wasn’t discovered until February, when two clerks under took a routine review of her case.

As thousands of cancer patients know well, standard chemotherapy involves figuring out a treatment that is aggressive enough to destroy a tumor without also killing the patient. For each person, doctors must calculate how much drug to use in relation to the individual’s size and body weight.

Once malignant cells have spread beyond their original location, however, traditional chemotherapy is usually much less successful at producing a cure. In an attempt to develop a treatment for these more advanced cases, the researchers at Dana-Farber have been experimenting with levels of antitumor agents that are much higher than those normally prescribed. In Lehman’s case, the treatment was to last four days, and the amount given during each 24-hour period was supposed to be barely shy of lethal. The physician in charge of figuring out her daily dose, whose identity has not been released, apparently made the mistake of writing down the amount that should have been given over the whole four-day period.

Still, all hospitals double-check the dosage of chemotherapy drugs that are given to a patient—and Dana-Farber is no exception. According to Gina Vili, a hospital spokeswoman, once the physician has written the order, Dana-Farber’s rules require two pharmacists to verify it. “Pharmacist 1 is supposed to check it and, yes, I suppose to make the calculations himself,” she told TIME. “I then ‘gives it’ to Pharmacist 2, who looks at it and checks it before sending the drug to the patient’s room. When the order for Lehman came through, neither pharmacist caught the mistake in dosage.

Even at the bedside, there was still a chance for someone to realize that something had gone desperately wrong. Lehman’s blood tests showed abnormal readings, and her electrocardiogram indicated enormous stresses on her heart. “She was vomiting sheets of tissue,” her husband Robert Distel told the Globe. “(The doctors) said this was the worst they had ever seen.”

But they considered Lehman’s violent reaction to be normal for such an aggressive treatment. All told, at least five hospital staff members failed to figure out that their therapy was killing her.

Dana-Farber has acknowledged full responsibility for Lehman’s death, as well as the permanent heart damage of another woman who managed to survive an identical fourfold overdose. In addition to ordering an exhaustive investigation, the hospital’s top physician has mandated additional precautions against such egregious mistakes. Staff members have been reassigned, and the pharmacy’s computer program has been modified so that drugs cannot be dispensed over preset limits.

Unfortunately, as long as doctors are human, treatment blunders can never be eliminated entirely. “With 4 million patients a day visiting physicians, it’s inevitable if inexusable that mistakes will be made,” says Dr. James Todd of the American Medical Association. Three large studies over the past 30 years have documented a distressingly consistent rate of medical mishaps in the U.S. By one measure, such negligence in American hospitals...
And . . . The “Stealth” Cost Culprit

“Cost of Poor Quality”?*

$390 Billion, Annually

* What IOM labels as “overuse, underuse, misuse and waste”
Our 1\textsuperscript{st} ⇔ 2\textsuperscript{nd} Curve Journey

- \textbf{1\textsuperscript{st} Curve:} Where did it come from, and how is it failing?
- \textbf{What is 2\textsuperscript{nd} curve health care?}
The 21st Century’s Flexner Report?
The Vision: 10 Rules of Performance in a Redesigned/2\textsuperscript{nd} Curve Health Care System

1. Care is based on continuous healing relationships.
2. Care is customized based on patient needs and values.
3. The patient is the source of control.
4. Knowledge is shared, and information flows freely.
5. Decision making is evidence based.
6. Safety is a system property.
7. Transparency is necessary.
8. Needs are anticipated.
9. Waste is continuously decreased.
10. Cooperation among clinicians is a priority.

- Institute of Medicine, Health Professions Education, 2003
Columns 2+3 = 2^{nd} Curve

**Regulation**
- Hammurabi
- Legal system
- State Boards
- JCAHO "Inspection"
- Fed/State regs
- ORYX, EMTALA, HIPAA, Etc.
- JC, CMS “core measures”

**Medical Science**
- Hippocrates
- Nightingale, 4 doctors
- Flexner, Codman, ACS/Hospital Standardization
  - M&M conferences
  - Donabedian, structure process, outcome
  - Outcomes, Disease management
    - Evidence based care, Hospitalists

**Management Science**
- Industrial Revolution
  - Taylor: “Scientific Management”
  - Shewhart
  - Deming, Juran, Total Quality
    - Complexity theory
      - Six Sigma, Lean, Action Learning, Adaptive Design, Resilience
The Innovations

... And Their Real Implication?

- Quality Science/Lean 6 Sigma
- Human Factors
- Transformational change: Action Learning, Adaptive Design, Appreciative Inquiry, Resilience
- Leadership/Culture change

Health Care’s Concurrent Industrial, Information, Consumer and Culture Revolutions
2\textsuperscript{nd} Curve Health Care Innovation

- Evidence-based medicine
- Clinical protocols
- Service Line Management
- Hospitalists, Intensivists
- Rapid cycle PDCA
- Lean Six Sigma
- IT:EHR, CPOE, Telehealth
- Clinical Microsystem Design
- Team-based care
- New models of Physician/Hospital partnerships
- Community health innovation (ACOs, Medical Home)
- Leadership/Transformational change: Action Learning, Adaptive Design, Appreciative Inquiry, Resilience, etc.

Health Care’s beginning ascent of its 2\textsuperscript{nd} Curve: Re-designing care systems around those served – while restoring the “joy of practice” to caregivers
**1st Curve**
- Evolved around medical and hospital practices
- Disease focus, one patient at a time
- Hierarchical, physician controlled
- Performance problems assumed as people-caused
- “Culture of blame”
- Fragmentation of care givers and health care functions, “hand-off” gaps common
- Medical records paper, fragmented, “owned” by caregiver
- Complexity ⇒ frequent errors, harm to patient
- Quality is compliance-oriented, 2-4 sigma common
- Reactive to “sentinel events”

**2nd Curve**
- Designed around patient/community, population need
- Health, prevention focus, patient plus population
- Team-based systems outperform hierarchy
- Recognition that performance problems 95% systems-based
- “Just Culture”
- Integration of all system elements, care “seamless” for patients
- EHR, “smart cards” owned by patients
- Integration of “quality sciences” minimizes error, harm
- Quality, value oriented toward 6+ sigma, O preventable harm
- Pro-active, “events” history
Our 1\textsuperscript{st} $\Rightarrow$ 2\textsuperscript{nd} Curve Journey

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The “Deming Cascade:” Simultaneous Quality $\uparrow$, Cost $\downarrow$, Value $\uparrow$ (W. Edwards Deming)

- Improve Quality $\downarrow$ (\Leftrightarrow Process Improvement)
- Decrease Cost $\downarrow$
- Enhance Value $\downarrow$
- Increase Market $\downarrow$
- More Jobs
Creating 2nd Curve Cultures

2nd Curve Vision

Change Processes

Change Structures

Change Work

2nd Curve Culture

“Changing how work is done changes the culture.”

- Jeff Goldsmith, PhD
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- Leadership
Caveat: Process change will not alone accomplish the transformation to $2^{nd}$ Curve . . .
Our Structural Heritage, 1917-2011

Our structural “fatal flaw”

Board of Trustees

Medical Staff Executive Committee

Chief Executive Officer

Physicians: (craft culture)

Management: (industrial culture)

2011: The Structure ⇒ Hierarchy, Fragmentation, Communication gaps, Misunderstanding, Power Struggles, etc.
Organizing the U.S. Health Care Delivery System for High Performance

August 7, 2008 | Volume 98

Author(s): Anthony Shih, M.D., M.P.H., Karen Davis, Ph.D., Stephen Schoenbaum, M.D., M.P.H., Anne Gauthier, M.S., Rachel Nuzum, M.P.H., and Douglas McCarthy, M.B.A.
Editor(s): Martha Hostetter

Overview

This report from The Commonwealth Fund Commission on a High Performance Health System examines fragmentation in our health care delivery system and offers policy recommendations to stimulate greater organization—established mechanisms for working across providers and care settings. Fragmentation fosters frustrating and dangerous patient experiences, especially for patients obtaining care from multiple providers in a variety of settings. It also leads to waste and duplication, hindering providers' ability to deliver high-quality, efficient care. Moreover, our fragmented system rewards high-cost, intensive medical intervention over higher-value primary care, including preventive medicine and the management of chronic illness. The solutions are complex and will require new financial incentives, changes to the regulatory, professional, and educational environments, and support for new infrastructure. But as a nation, we can no longer tolerate the status quo of poor health system performance. Greater organization is a critical step on the path to higher performance.
1st Curve: FRAGMENTATION!!!

- Patients and families navigate unassisted across different providers and care settings, fostering frustrating and dangerous patient experiences.
- Poor communication and lack of clear accountability for a patients among multiple providers lead to medical errors.
- The absence of peer accountability, quality improvement infrastructure, and clinical information systems foster poor overall quality of care.
- High-cost, intensive medical intervention is rewarded over higher-value primary care, including preventive medicine and the management of chronic illness.

- Adapted from The Commonwealth Fund Commission on a High Performance Health System, 2008
The “New Leadership:”

Creating Context

“Farmers don’t grow crops; they create conditions under which crops can grow.”

- Stephen Covey

Question: In my leadership role, am I creating a “fertile field” for a) vigorous process improvement, and b) reflecting seriously on whether or not present structures enhance or hinder energetic top-down, bottom-up collaboration and change?
Collaborative Care: ALL are Team Members
* Specialties provide care in all service lines
“Command & Control”
Pyramid (Taylorism, circa 1900)

Commands

Top Management

Obedience

Hint: Doesn’t Work Anymore
“Stewardship/Servant Leadership” (Covey, Block, others)

Those We Serve

Caregivers/Innovation

Resources/Support

Top Management
What might I do . . . ?

“Make yourself what you want the world to become.”

- Mohandas Gandhi

“To successfully respond to the myriad changes that shake the world . . . Transformation into a new style of management is required . . .

The first step is the transformation of the individual.”

- W. Edwards Deming