


TEAM MEDICINE VIRGINIA MASON

Seeking Zero Defects: Applying the Toyota Production System to Medicine

Pay For Performance Summit

March 9, 2010

Gary S. Kaplan, MD, Chairman and CEO
Virginia Mason Medical Center
Seattle, Washington

“If you are dreaming about it… you can do it.”

Sensei Chihiro Nakao

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First, Some Background…
Virginia Mason Medical Center

- An integrated healthcare system
- 501(c)3 Not for Profit
- 336 bed hospital
- 9 locations (main campus and regional centers)
- 450 physicians
- 5000 employees
- Graduate Medical Education Program
- Research center
- Center for Health Care Solutions
- Virginia Mason Institute

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Time for a Change

Year 2000

- Issues
  - Survival
  - Retention of the Best People
  - Loss of Vision
  - Build on a Strong Foundation
- Leadership Change
- A Defective Product

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Why is Change So Hard?

- Culture
- Lack of Shared Vision
- Misaligned Expectations
- No Urgency
- Ineffective Leadership

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An Embarrassingly Poor Product

The March 16, 2003 edition of The New York Times Magazine front cover reads, “Half of what doctors know is wrong.”

The lead story is titled “The Biggest Mistake of Their Lives” and chronicles four survivors of medical errors.

The article goes on to say that in 2003, as many as 98,000 people in the United States will die as a result of medical errors.

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Virginia Mason Medical Center

November 23, 2004

***Investigators*: Medical mistake kills Everett woman**

Hospital error caused death

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Traditional Compact

- Despite the fact things weren't working, most physicians clung to the fundamental "gets" they felt due them
  - Protection
  - Autonomy
  - Entitlement
- Physician-centered world view prevailed

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Virginia Mason Medical Center Physician Compact

Organization's Responsibilities

Foster Excellence

- Recruit and retain superior physicians and staff
- Support career development and professional satisfaction
- Acknowledge contributions to patient care and the organization
- Create opportunities to participate in or support research

Listen and Communicate

- Share information regarding strategic intent, organizational priorities and business decisions
- Offer opportunities for constructive dialogue
- Provide regular, written evaluation and feedback

Educate

- Support and facilitate teaching, GME and CME
- Provide information and tools necessary to improve practice

Reward

- Provide clear compensation with internal and market consistency, aligned with organizational goals
- Create an environment that supports teams and individuals

Lead

- Manage and lead organization with integrity and accountability

Physician's Responsibilities

Focus on Patients

- Practice state of the art, quality medicine
- Encourage patient involvement in care and treatment decisions
- Achieve and maintain optimal patient access
- Insist on seamless service

Collaborate on Care Delivery

- Include staff, physicians, and management on team
- Treat all members with respect
- Demonstrate the highest levels of ethical and professional conduct
- Behave in a manner consistent with group goals
- Participate in or support teaching

Listen and Communicate

- Communicate clinical information in clear, timely manner
- Request information, resources needed to provide care consistent with VM goals
- Provide and accept feedback

Take Ownership

- Implement VM-accepted clinical standards of care
- Participate in and support group decisions
- Focus on the economic aspects of our practice

Change

- Embrace innovation and continuous improvement
- Participate in necessary organizational change

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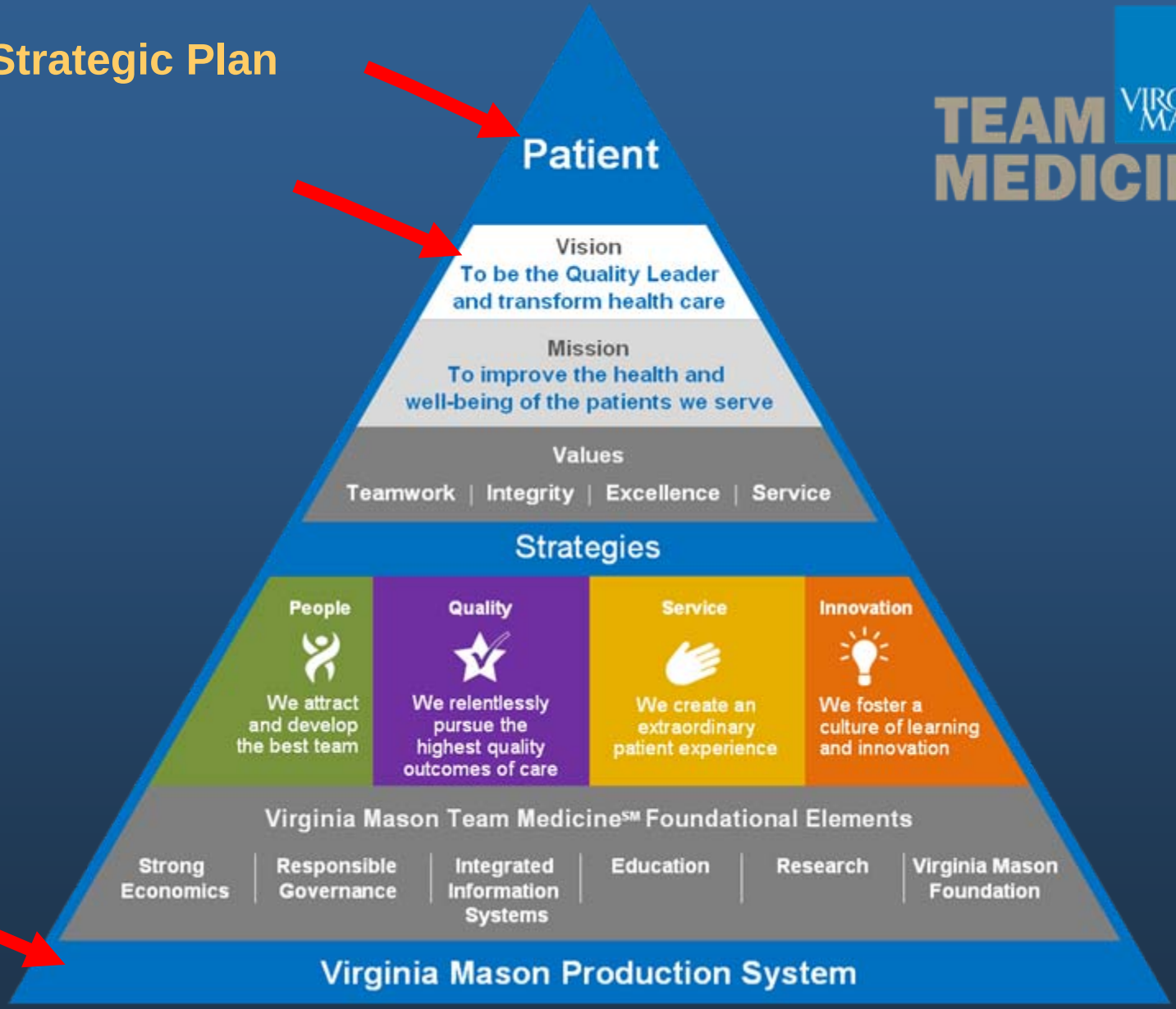
Our Strategic Plan



The VMMC Quality Equation

$$Q = A \times \frac{(O + S)}{W}$$

Q: Quality
A: Appropriateness
O: Outcomes
S: Service
W: Waste

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New Management Method: The Virginia Mason Production System

We adopted the Toyota Production System philosophies and practices and applied them to health care because health care lacks an effective management approach that would produce:

- Customer first
- Highest quality
- Obsession with safety
- Highest staff satisfaction
- A successful economic enterprise

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Relentless “War on Waste”: Key to Quality

7 Wastes:

- Waste of overproduction → Lab tests
- Waste of transportation → Patient transfers
- Waste of over processing → Charge tickets
- Waste of inventory → Drugs, supplies
- Waste of motion → Searching for charts
- Waste of making defective products or poor quality → Professional liability
- Waste of engineering → Large centralized machines

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The Impact of Lean

- ½ the human effort
- ½ the space
- ½ the equipment
- ½ the inventory
- ½ the investment
- ½ the engineering hours
- ½ the new product development time

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Seeing with our Eyes
Japan 2002

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Hitachi Air Conditioning

Team Leader Kaplan reviewing the flow of the process with

Drs. Jacobs and Glenn

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Summary

How are air conditioners, cars, looms and airplanes like health care?

- Every manufacturing element is a production processes
- Health care is a combination of complex production processes: admitting a patient, having a clinic visit, going to surgery or a procedure and sending out a bill
- These products involve thousands of processes—many of them very complex
- All of these products involve the concepts of quality, safety, customer satisfaction, staff satisfaction and cost effectiveness
- These products, if they fail, can cause fatality

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VMPS Tools in Action

- **Value Stream Development**
- **RPIW** (Rapid Process Improvement Workshop)
- **5S** (Sort, simplify, standardize, sweep, self-discipline)
- **3-P** (Production, Preparation, Process)
- **Standard Work**
- **Daily Work Life**

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5S Anesthesia “Shadow Board” - Before

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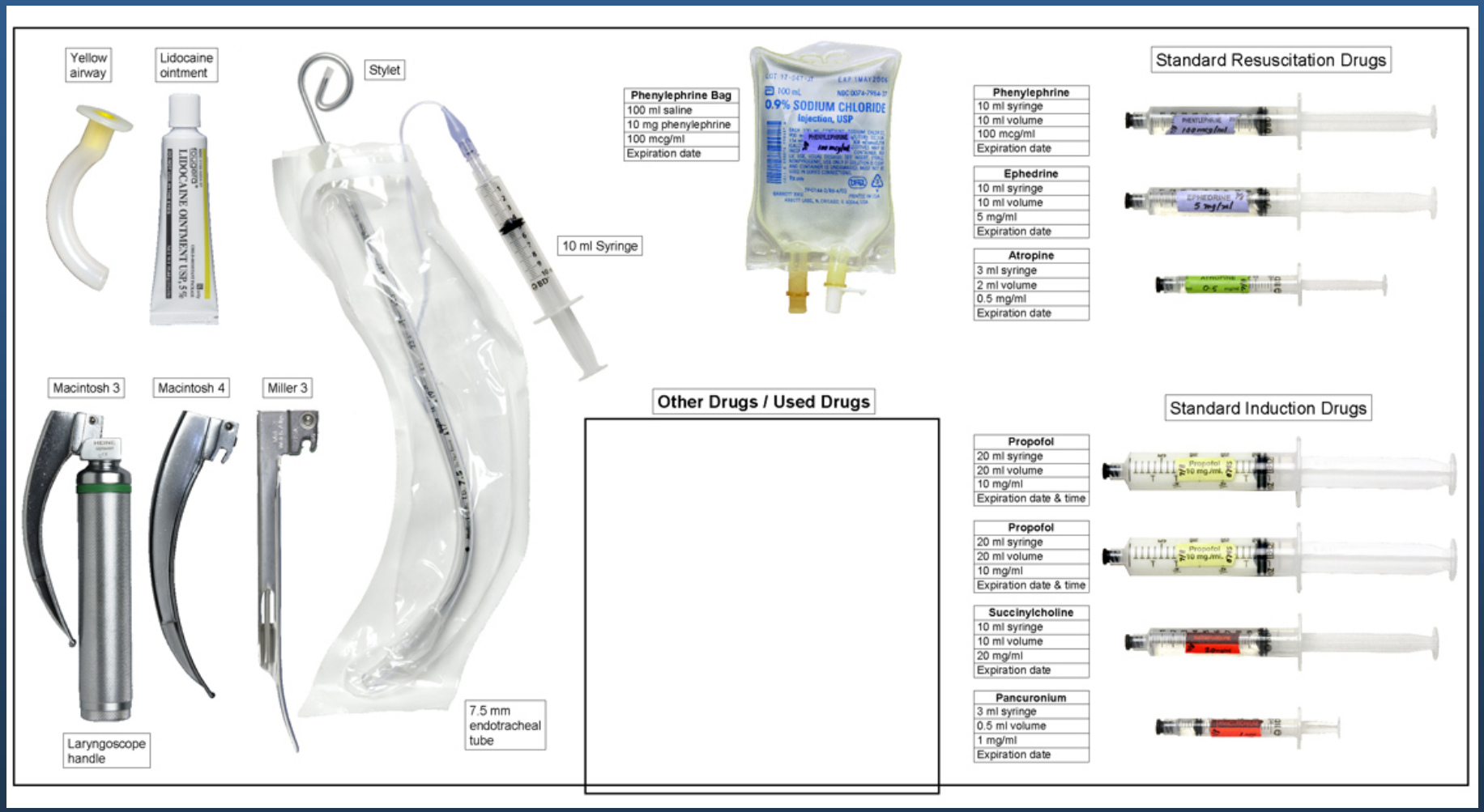

5S Anesthesia “Shadow Board” - After

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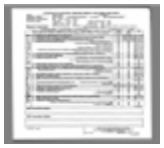
Central Line Insertion Standard Work

Before





PROCEDURAL

Paws

Dry:
30 sec scrub
30 sec dry
Wet:
2 min scrub
1 min dry

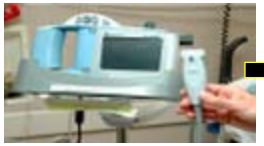
Maximum Barrier Protection

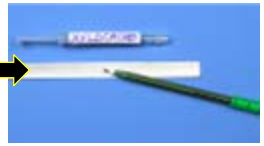
OR

AND

Thyroid — Angio Drapes

During





Transducer Kit in Top Drawer of Cart


OR

Transducer Method — Manometer Method

After



"Approved to use Date/Initial" — Yellow – top of cart — White – in chart progress notes

Complete Paperwork

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Stopping the Line™

Virginia Mason's Patient Safety Alert System™

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Stopping the line

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Patient Safety Alert Process ™ Created August 2002

- Leadership from the top
- “Drop and run” commitment
- 24/7 policy, procedure, staffing
- Legal and reporting safeguards

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Patient Safety Alert Results as of December 31, 2009

14,604 Patient Safety Alerts

- Diagnosis/Treatment 25%
- Medication Errors 21%
- Systems 36%
- Equipment/Facilities 4%
- Safety/Security/Conduct 14%

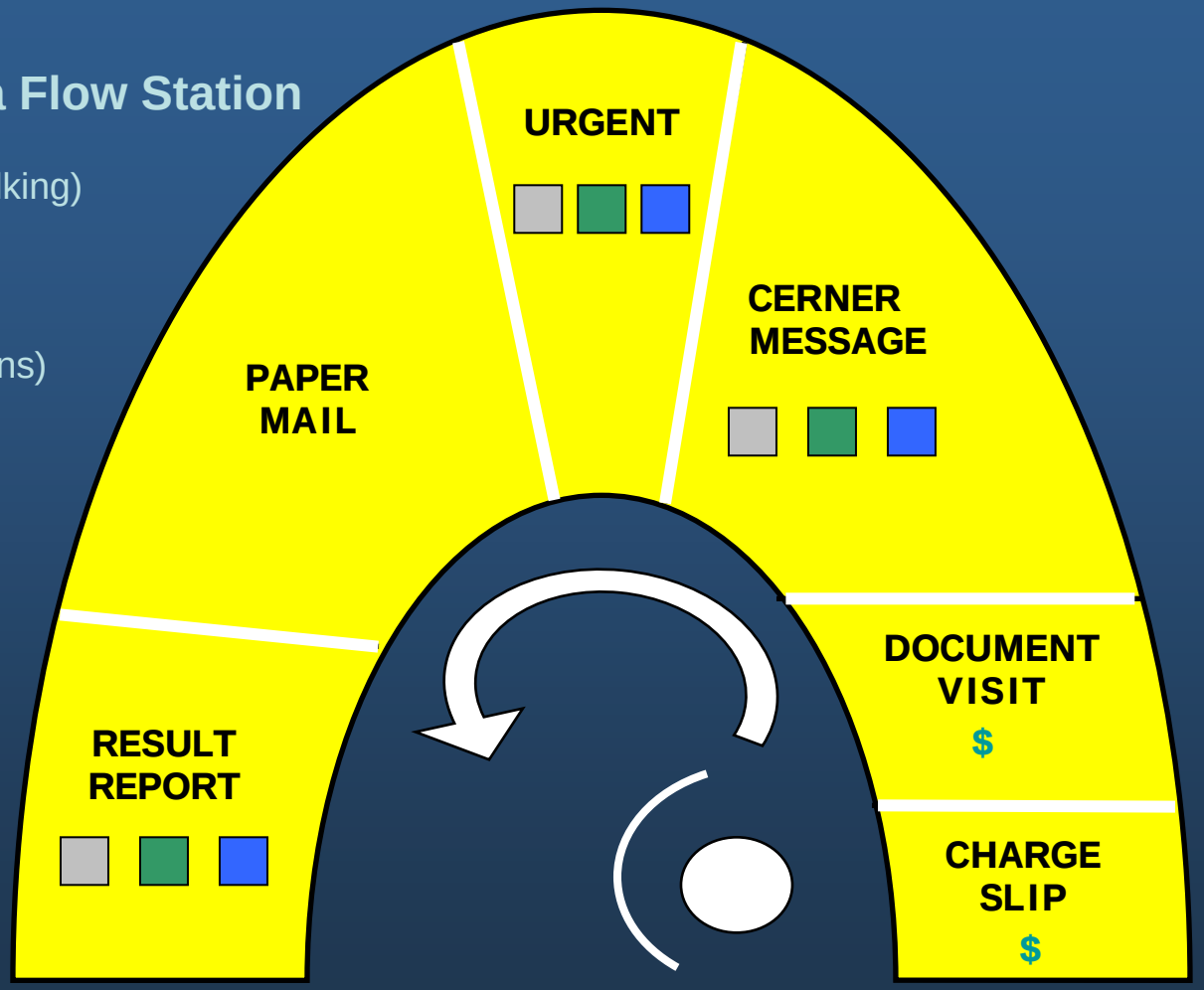
Average # of PSAs/month

- 2002- 3/month
- 2003- 10+/month
- 2004- 17/month
- 2005- 251/month
- 2006- 276/month
- 2007 -238/month
- 2008 - 226/month
- 2009 - 244/month

Primary Care – Flow Stations

VMPS Concepts of a Flow Station

- Waste of motion (walking)
- Continuous flow
- Visual control (Kanbans)
- External setup
- Water strider
- U-Shaped Cell



Creating MD Flow Reduces Patient Wait Times

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“Nursing Cells” – Results > 90 days

RN time available for patient care = 90%!

Before	After
• RN # of steps = 5,818	846
• PCT # of steps = 2,664	1256
• Time to the complete am cycle of work = 240’	126’
• Patients dissatisfaction = 21%	0%
• RN time spent in indirect care = 68%	10%
• PCT time spent in indirect care = 30%	16%
• Call light on from 7a-11a = 5.5%	0%
• Time spent gathering supplies = 20’	11’

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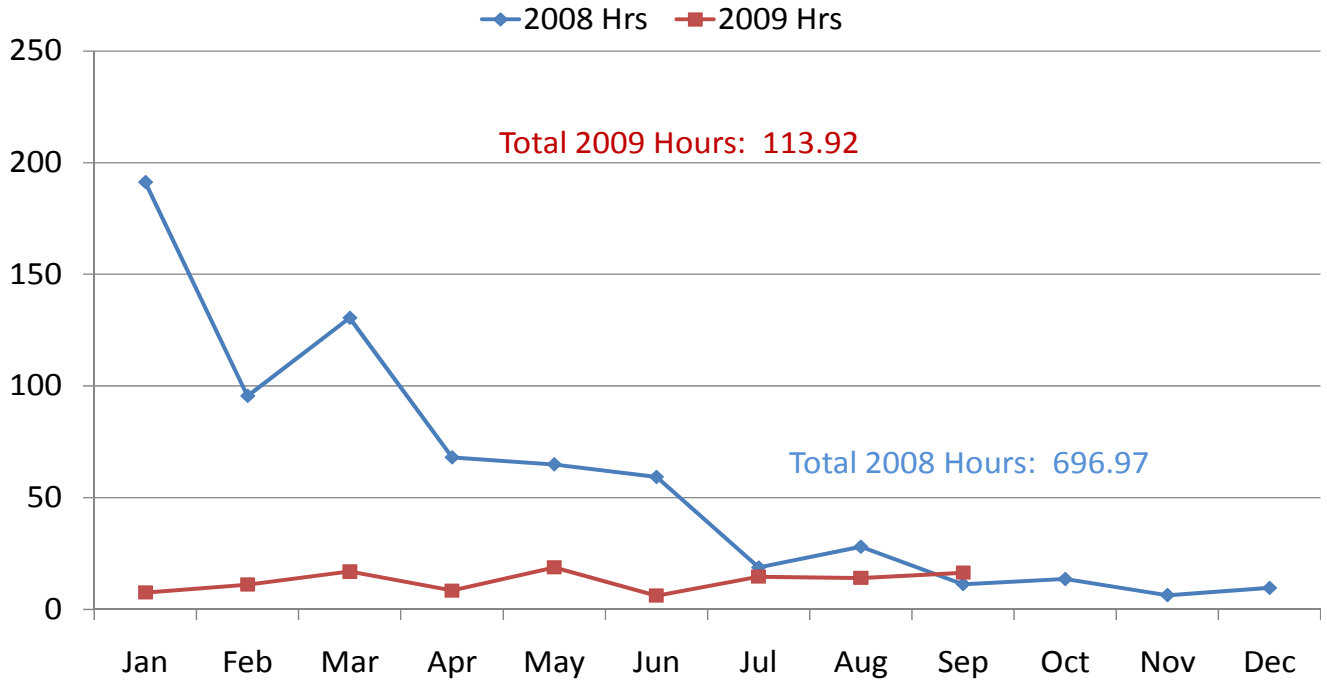
Improving Quality and Access: *Emergency Department*

2008-2009 ED Divert Hours



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2008 Hrs.	191.25	95.55	130.5	68	64.9	59.25	18.75	28	11.3	13.55	6.37	9.55
2009 Hrs.	7.5	11.07	16.97	8.4	18.78	6.1	14.68	14.02	16.4			

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Lindeman Surgery Center Throughput Analysis

	Before	Today	% Change
• Time Available (10 hr day)	600 min	600 min	0%
• Total Case Time (cut to close plus set-up)	107 min	65.5 min	39%
• Case Turnover Time (pt out to pt in)	30 min	15 min (ability to be <10 min)	50%
• Cases/day	5 cases/OR	8 cases/OR	60%
• Cases/4 ORs	20 cases	32 cases	60%

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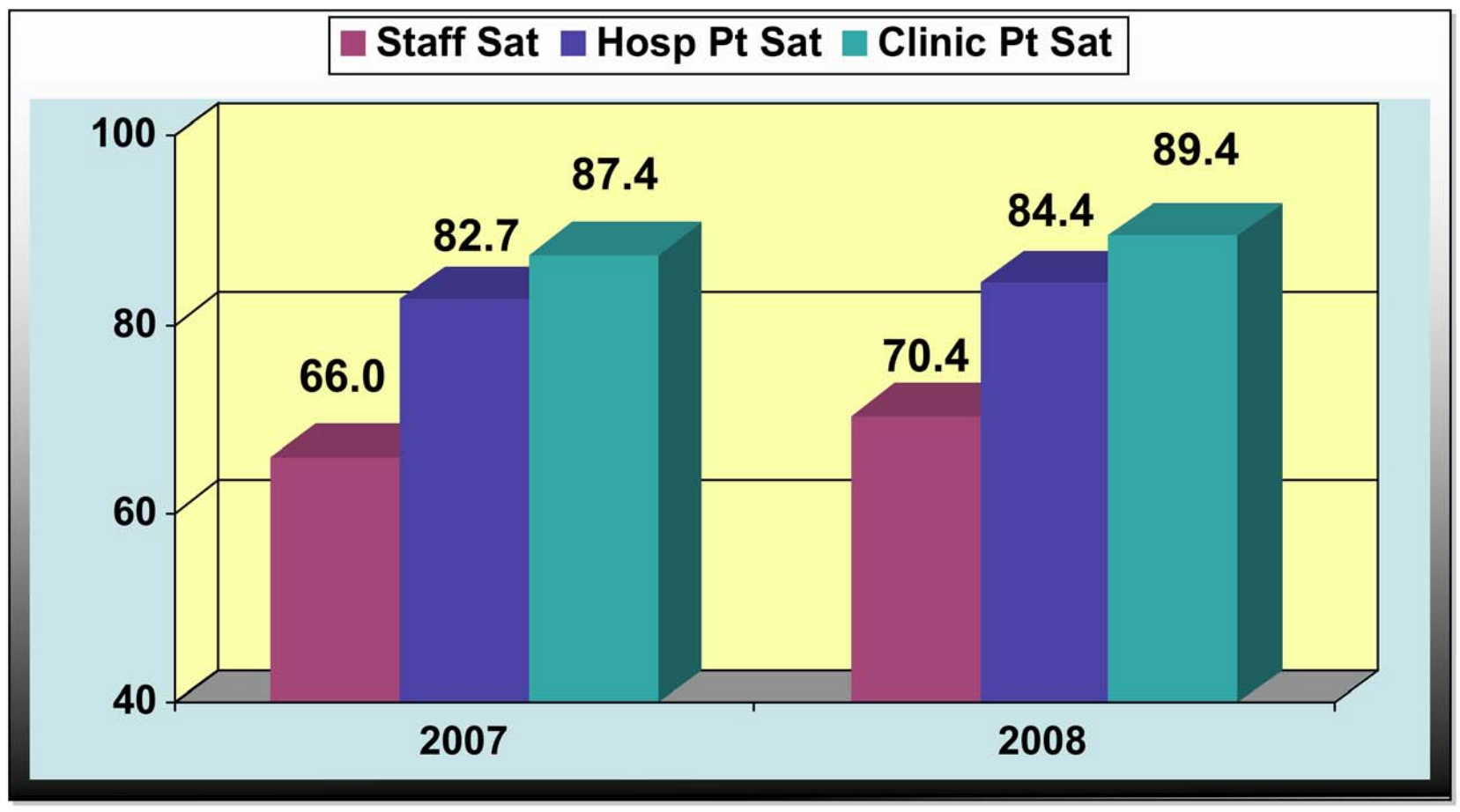
Patient & Staff Satisfaction Correlation



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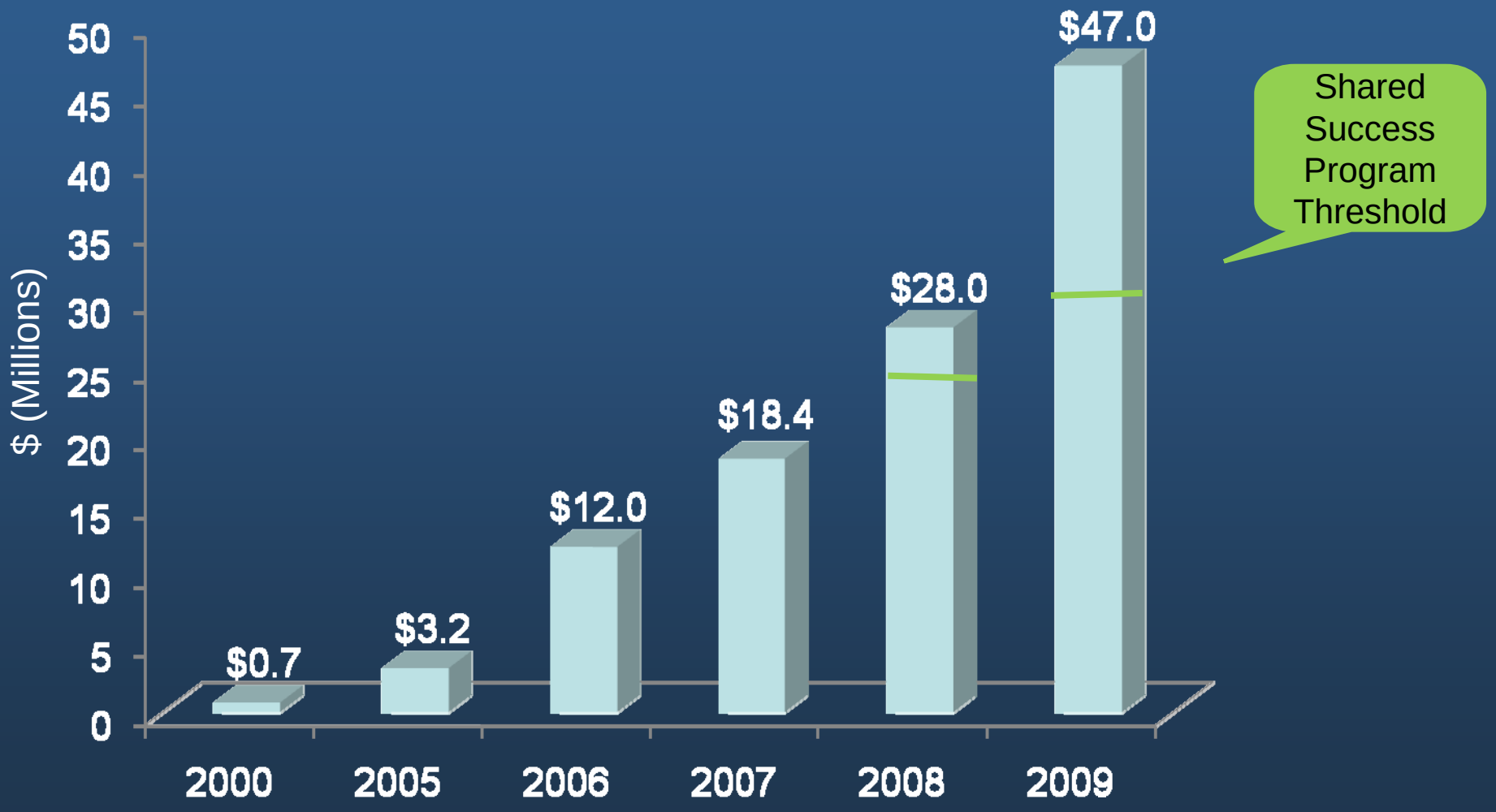
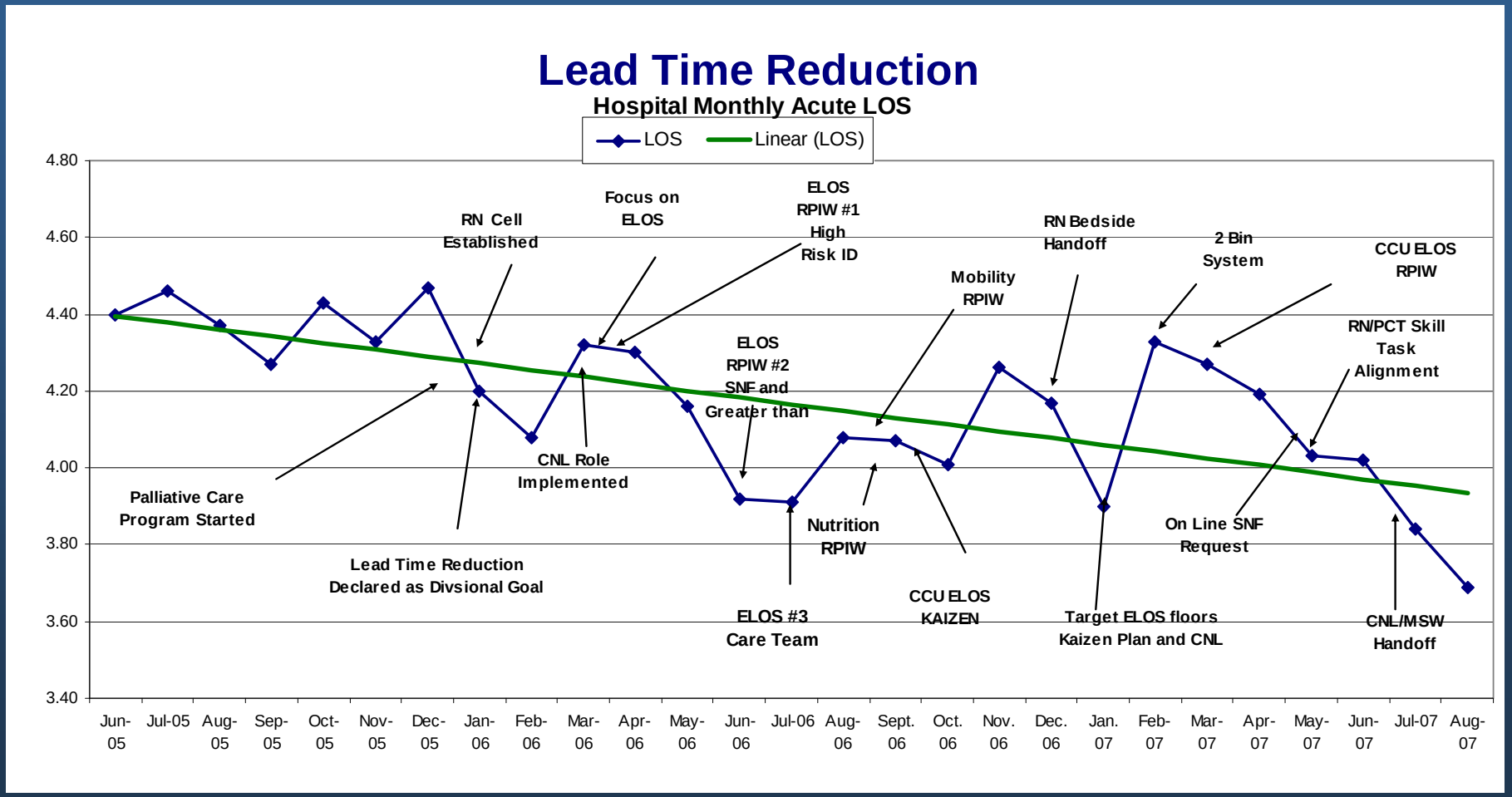
Successful Economic Performance



Hospital Acute LOS



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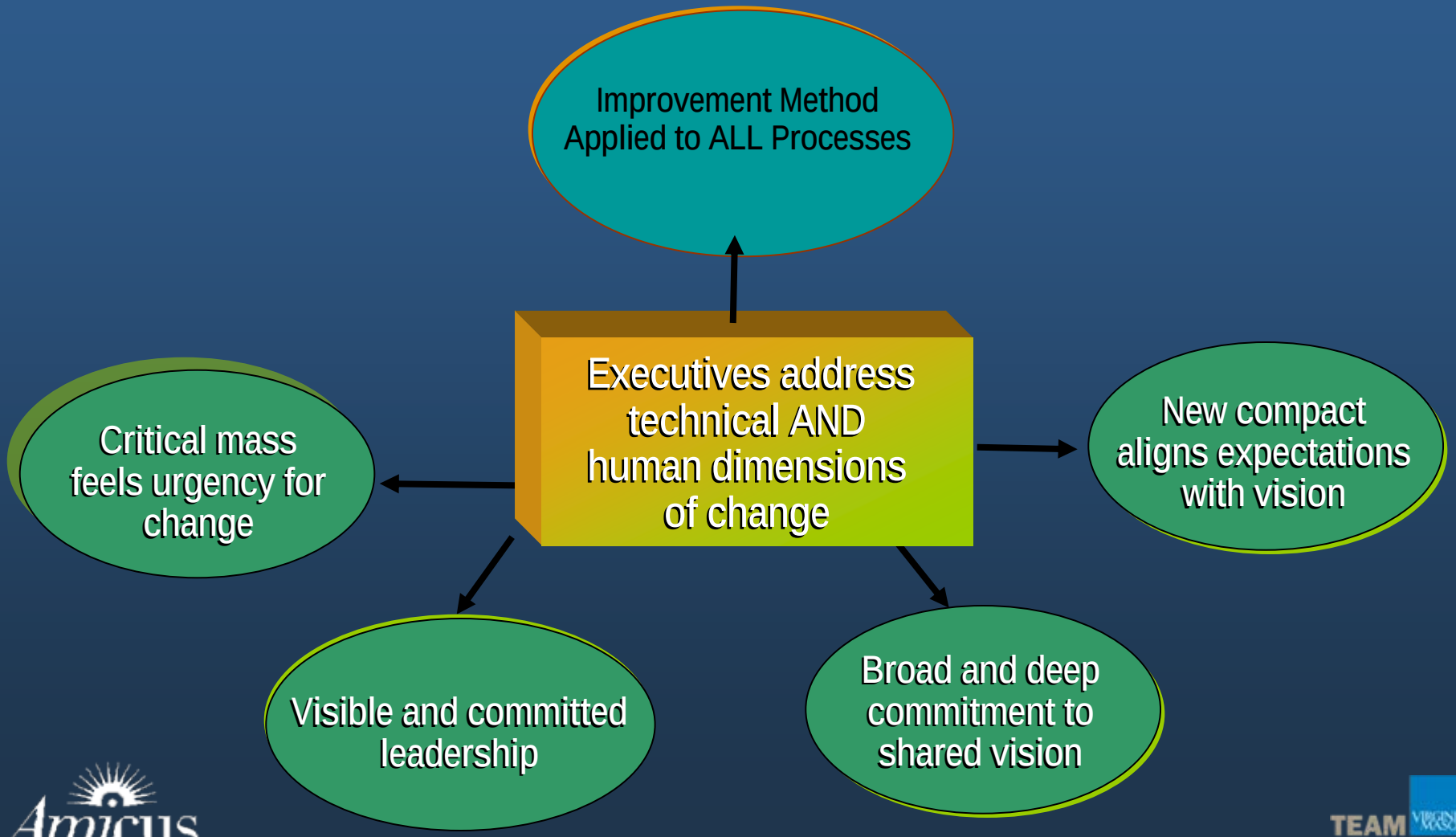
Requirements for Transformation



Amicus

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Leadership Compact

Foster Excellence

Recruit and retain the best people

Acknowledge and reward contributions to patient care and the organization

Provide opportunities for growth of leaders

Continuously strive to be the quality leader in health care

Create an environment of innovation and learning

Focus on Patients

Promote a culture where the patient comes first in everything we do

Continuously improve quality, safety and compliance

Lead and Align

Create alignment with clear and focused goals and strategies

Continuously measure and improve our patient care, service and efficiency

Manage and lead organization with integrity and accountability

Resolve conflict with openness and empathy

Ensure safe and healthy environment and systems for patients and staff

Promote Team Medicine

Develop exceptional working-together relationships that achieve results

Demonstrate the highest levels of ethical and professional conduct.

Promote trust and accountability within the team

Listen and Communicate

Share information regarding strategic intent, organizational priorities, business decisions and business outcomes

Clarify expectations to each individual

Offer opportunities for constructive open dialogue

Ensure regular feedback and written evaluations are provided

Encourage balance between work life and life outside of work

Listen and Communicate

Communicate VM values

Courageously give and receive feedback

Actively request information and resources to support strategic intent, organizational priorities, business decisions and business outcomes

Educate

Support and facilitate leadership training

Provide information and tools necessary to improve individual and staff performance

Take ownership

Implement and monitor VM approved standard work

Foster understanding of individual/team impact on VM economics

Continuously develop one's ability to lead and implement the VM Production System

Participate in and actively support organization/group decisions

Maintain an organizational perspective when making decisions

Continually develop oneself as a VM leader

Recognize and Reward

Provide clear and equitable compensation aligned with organizational goals and performance

Create an environment that recognizes teams and individuals

Foster Change and Develop Others

Promote innovation and continuous improvement

Coach individuals and teams to effectively manage transitions

Demonstrate flexibility in accepting assignments and opportunities

Evaluate, develop and reward performance daily

Accept mistakes as part of learning

Be enthusiastic and energize others

Leaders' Role in Signal Generation

"Leaders are signal generators who reduce uncertainty and ambiguity about what is important and how to act".

— Charles O'Reilly III

OR

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Tuesday “Stand Up”

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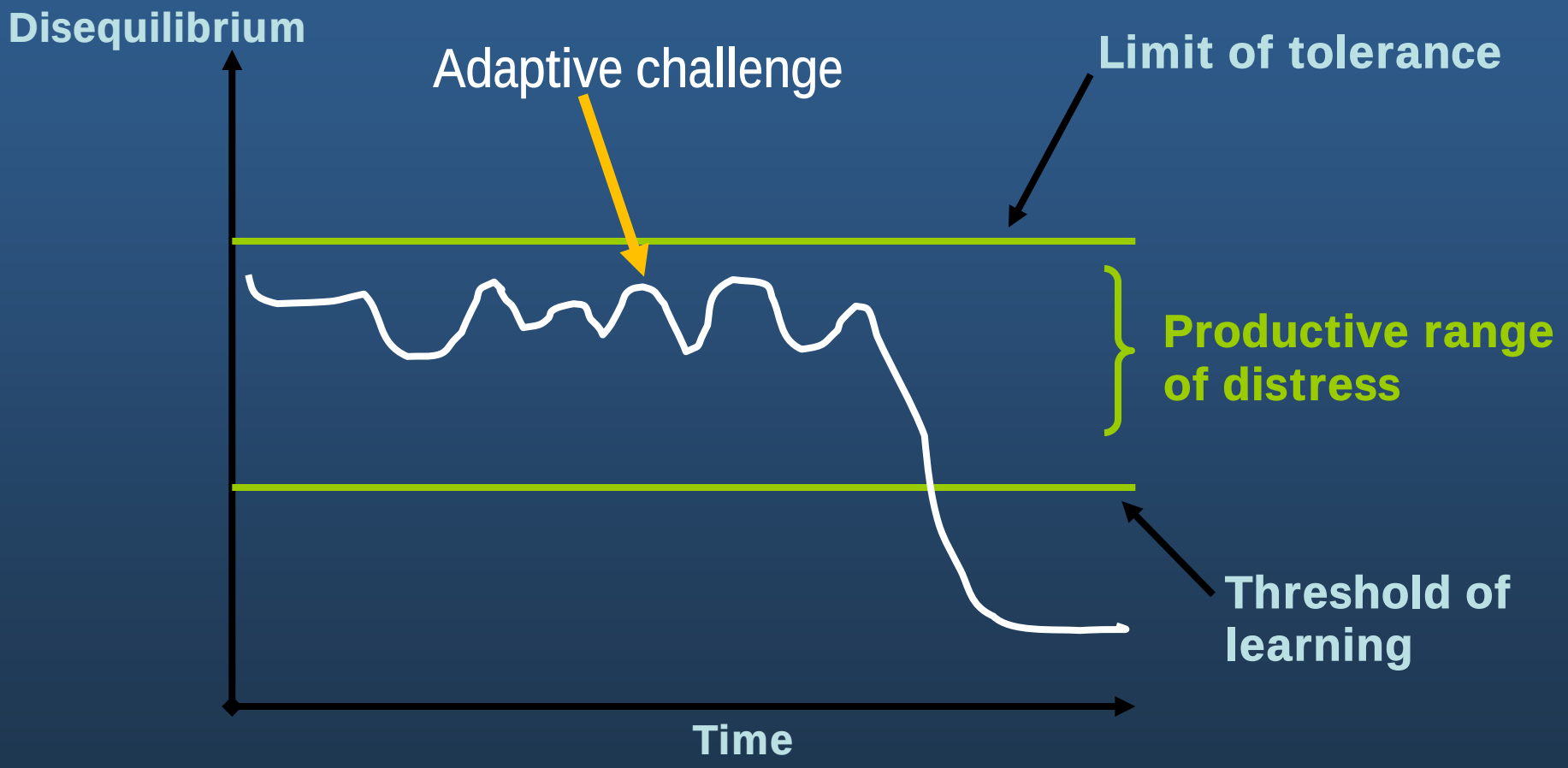
“Distress” and Adaptive Work



Heifetz, Ronald A. and Marty Linsky. *Leadership on the Line*, Harvard Business School Press, 2002, p 108

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Flu Vaccination “Fitness for Duty”

- Do we put patient first?
- Compelling science
- Staff resistance
- Staying the course
- Organizational Pride

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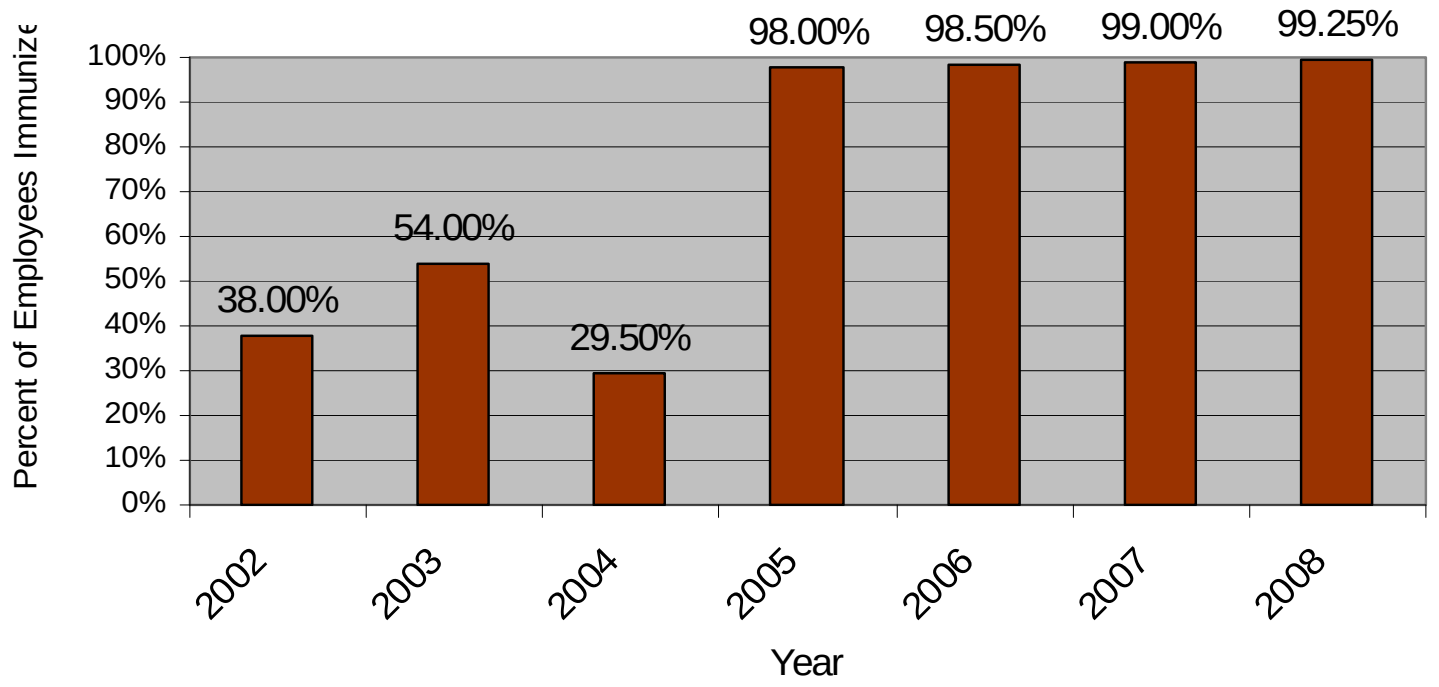
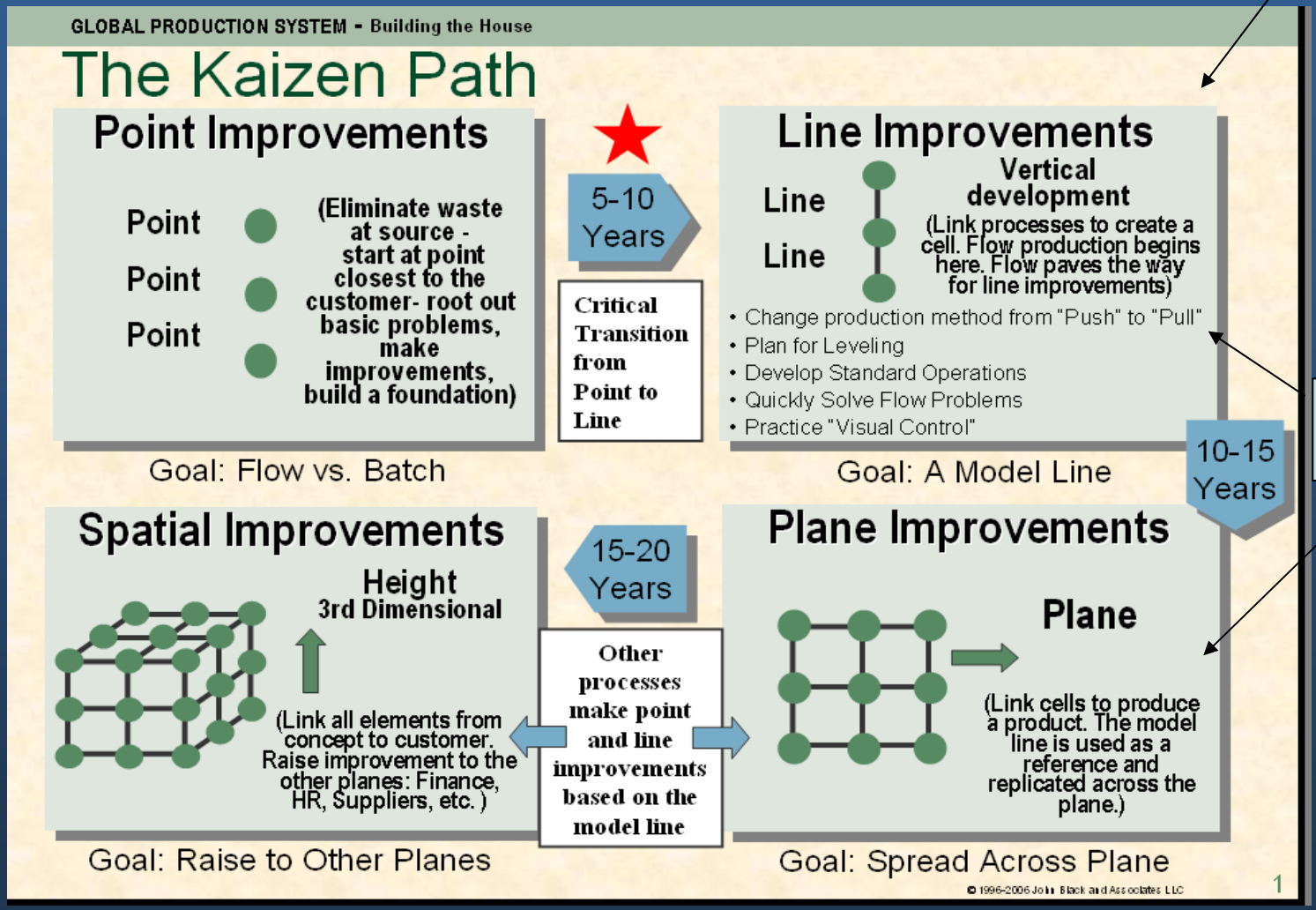
Figure 1: Immunization Rates



We are Eight Years into the Journey

2002 - 2004

2005 - 2006



2007 - present

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THELEAPFROGGROUP
Informing Choices. Rewarding Excellence.
Getting Health Care Right.
Site Map
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2009
Home
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For Consumers
For Members
For Hospitals
For Data Partners
News & Events
Patient Safety
RATINGS
Progress Towards Meeting Leapfrog Standards
Willing to Report
Some Progress
Substantial Progress
Fully Meets Standards
Start Over
Survey Info
Scoring Info
Search Results: Zip Code 98101 - Radius: 10 Miles
= More Information
Click to Change Treatment
Overall Patient Safety Ratings
Click to Compare
Sort
Prevent Medication Errors
Appropriate ICU Staffing
Steps to Avoid Harm
Reduce Pressure Ulcers
Reduce In-Hospital Injuries
Managing Serious Errors
Reduce ICU Infections
Transparency Indicator
Survey Results Submitted
VIRGINIA MASON MEDICAL CENTER
SEATTLE, WA
Other Reporting Efforts
8/31/2009
SWEDISH MEDICAL CENTER - CHERRY HILL
SEATTLE, WA
Other Reporting Efforts
6/30/2009
HARBORVIEW MEDICAL CENTER
SEATTLE, WA
Other Reporting Efforts
6/24/2009
SWEDISH MEDICAL CENTER - FIRST HILL
SEATTLE, WA
Other Reporting Efforts
6/30/2009
UNIVERSITY OF WASHINGTON MEDICAL CTR
SEATTLE, WA
Other Reporting Efforts
6/30/2009
OVERLAKE HOSPITAL MEDICAL CENTER
BELLEVUE, WA
Other Reporting Efforts
6/24/2009
EVERGREEN HEALTHCARE
KIRKLAND, WA
Other Reporting Efforts
8/31/2009
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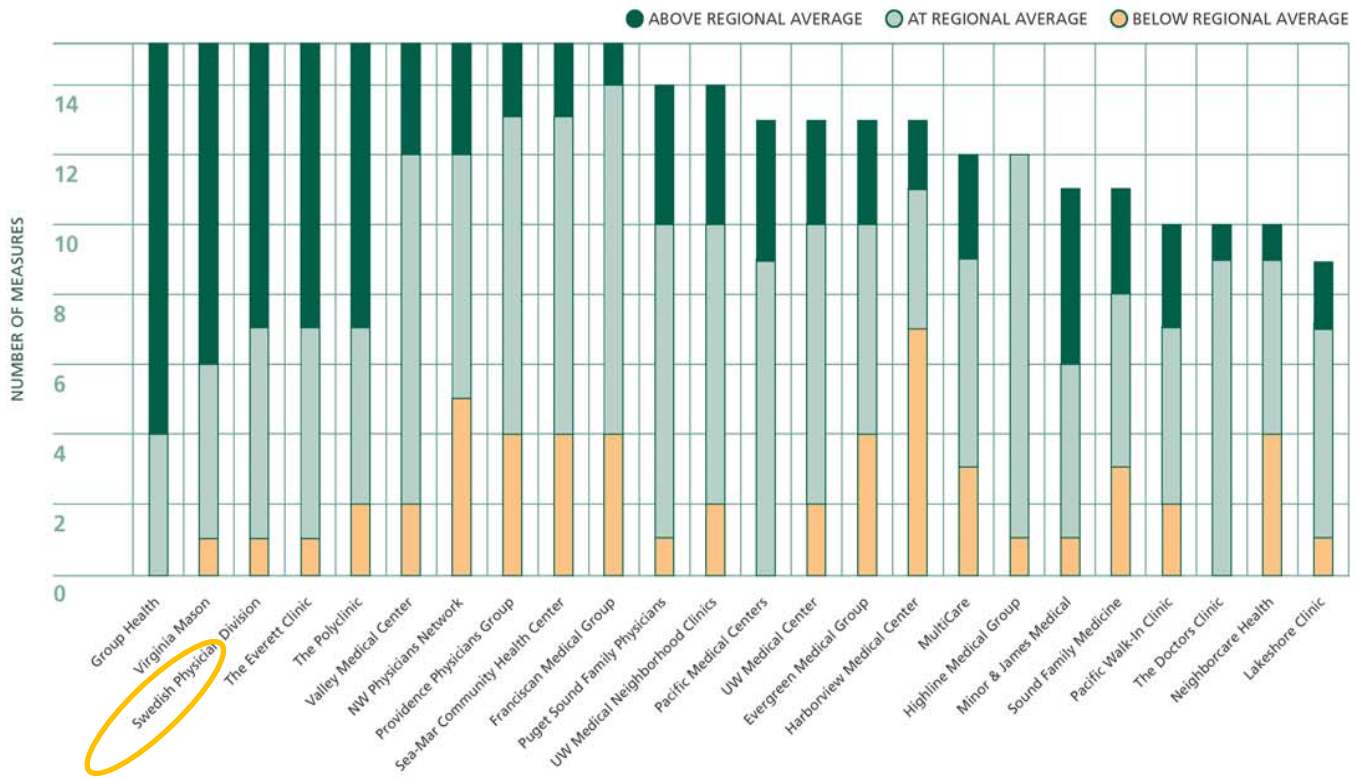
MEDICAL GROUP RESULTS OVERVIEW – CHART 1



Ongoing Challenges - Culture

- Patient First
- Belief in Zero Defects
- Professional Autonomy
- “Buy In”
- “People are Not Cars”
- Pace of Change
- Victimization
- Leadership Constancy
- Rigor, Alignment, Execution
- Drive for Results

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First Challenge is Changing the Mind of Medicine

FROM	TO
Provider First	Patient First
Waiting is Good	Waiting is Bad
Errors are to be Expected	Defect-free Medicine
Diffuse Accountability	Rigorous Accountability
Add Resources	No New Resources
Reduce Cost	Reduce Waste
Retrospective Quality Assurance	Real-time Quality Assurance
Management Oversight	Management On Site
We Have Time	We Have No Time

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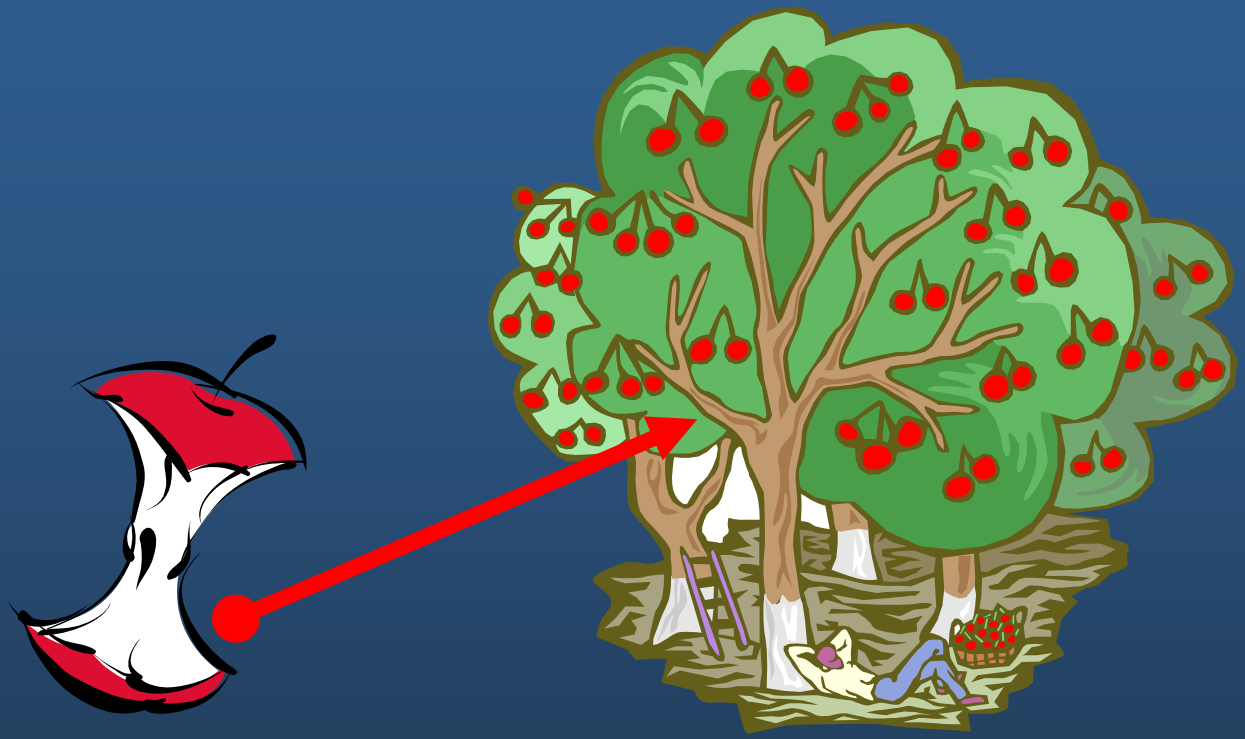
LEADERSHIP MUST CHANGE ITS MENTALITY.



SCARCITY:

You are not paying us enough.

ABUNDANCE:

We have more than enough.

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“Leaders are Dealers in Hope.”
Napoleon Bonaparte

"In times of change, learners inherit the earth, while the learned find themselves beautifully equipped to deal with a world that no longer exists."

Eric Hoffer

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