Learning from Toyota and W. Edwards Deming

Virginia Mason Medical Center’s Quality Journey

The Quality Colloquium
August 2004

Gary S. Kaplan, MD
Chairman and CEO
Virginia Mason Medical Center
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)
- 400 physicians
- 5000 employees
- Graduate Medical Education Program
- Research center
- Foundation
Virginia Mason Medical Center

- Tertiary Referral Center
- Education and Research
- Primary and Specialty Care
- "Academic Half-Way House"
- Innovation
- 16,000 Admissions
- 1.2 Million Visits
- Greater than $1.2 Billion Gross Charges
Virginia Mason Medical Center

2000
- Leadership Change
- Issues
  - Survival
  - Retention of Best People
  - Need for Change
  - Build on a Strong Foundation
Mandate for Change

- Economics
- Simultaneous Growth and Contraction
- Business Principles and Discipline
- Governance Change - Role of the Board
- Open Communication and Shared Vision
- Trust
Organizational Transformation

Physician Issues

• Clarity of Expectations
  ➢ Compact
  ➢ Job Descriptions
• Responsibility and Accountability
• Culture of Feedback
• Transparency
• Trust
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
Strategic Plan 2002-2006

Our Vision is to be the Quality Leader

Our Mission is to improve the Health and Well-being of the Patients We Serve

Values:
- Teamwork
- Integrity
- Excellence
- Service

We will:
- Recruit & Retain the Best Physicians and Staff
- Pursue the Highest Quality Outcomes of Care
- Unequivocally Insist on Extraordinary Patient Service
- Promote a Culture of Innovation

Identify Program Growth Priorities: Our initial selections are Cancer Services and Cardiovascular Services

- Integrated Information Systems
- Strong Economics
- Lean Thinking Philosophy
- Responsible Governance
- Education & Research
- VM Foundation
An Embarrassingly Poor Product

- 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.
Hospital Complications Exceed $9 Billion

(Study based on data from 994 hospitals in 2000.)

<table>
<thead>
<tr>
<th>Condition</th>
<th># Patients affected annually</th>
<th>Mortality rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bedsores</td>
<td>41,440</td>
<td>7.23%</td>
</tr>
<tr>
<td>Accidental Puncture</td>
<td>11,810</td>
<td>2.16%</td>
</tr>
<tr>
<td>Infection Caused by Medical Care</td>
<td>11,449</td>
<td>4.31%</td>
</tr>
<tr>
<td>Bloodstream Infections</td>
<td>2,592</td>
<td>21.92%</td>
</tr>
<tr>
<td>Wound Reopening</td>
<td>843</td>
<td>9.63%</td>
</tr>
<tr>
<td>Foreign Object Left Inside Body</td>
<td>536</td>
<td>2.14%</td>
</tr>
</tbody>
</table>

Source: Journal of the American Medical Association
Why Zero Defects is the Only Acceptable Standard?

- At 99.9% quality levels, here is what happens:
  - 22,000 checks are deducted from the wrong bank accounts every day
  - 16,000 pieces of mail are lost by the Postal Service every hour
  - 2,000 unsafe airplane landings are made every day
  - 500 incorrect surgeries are completed every week
Changing the Mind of Leadership

- At Virginia Mason our vision is to be the Quality Leader in healthcare.
- We are committed to producing a defect free product.
- We are pursuing that goal through the adoption of the Virginia Mason Production System.
The Virginia Mason Production System is the Toyota Production System based management method by which we will accomplish our vision to be the quality leader.
VMPS at Virginia Mason

We adopted the Toyota Production System philosophies and practices and applied them to healthcare because this industry and we were so lacking in an effective management approach that resulted in:

- Customer First,
- Highest Quality,
- Obsession with safety, and
- Highest staff satisfaction,
- A successful economic enterprise.
Relentless War on Waste

7 Wastes

- Waste of overproduction
- Waste of transportation
- Waste of overprocessing
- Waste of inventory
- Waste of motion
- Waste of making defective products or poor quality
Principles

- Define Value
- Identify Value Stream
- Continuous Flow
- Pull
- Pursuit of Perfection
7 Flows

Production
• People
• Raw Material
• Parts
• Production
• Equipment
• Information
• Engineering

Medicine
• Patients
• Providers
• Medication
• Supplies
• Information
• Equipment
• Process Engineering
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
Seeing with our Eyes
Japan 2002
Overview

• Introduction
• Toyota Museum of Industry and Technology
• Hitachi Air Conditioning
• Toyota Motor Corporation
• Summary of Trip
• Our Plan
• Conclusion
• Team Leader Kaplan reviewing the flow of the process with Drs. Jacobs and Glenn
Hitachi Air Conditioning

- Dave recording the work flow and timing cycle time
Air conditioners, cars, looms, airplanes and forklifts...what do any of these products have to do with health care?

- Health care, too, is full of production processes
- These Japanese products, like our services, involve the concepts of quality, safety, customer satisfaction, staff satisfaction and cost effectiveness
- The completion of a product involves thousands of processes—many of them very complex
- Many products, if they fail, can cause fatality
- They are in many ways, just like us
What We Learned

- Production processes have much in common with admitting a patient, having a clinic visit, going to surgery or a procedure and sending out a bill

- To have smooth, high quality continuous flow of our patients is delightful when it happens

- Our vision is that this would happen always for our patients

- We are more convinced than ever that the principles and tools of the Toyota Production System may well become those of the Virginia Mason Production System, the system of management behind the achievement of becoming the Quality Leader
The Plan

The plan for translating what we learned into reality at Virginia Mason has seven areas of focus:

• “Patient First” will be the driver for all that we do

• Our brand of the Toyota Production System will be the “Virginia Mason Production System”

• Create an environment in which our people feel sate and free to engage in improvement - “No Layoff Policy”
The Plan

• The plan for translating what we learned into reality at Virginia Mason has seven areas of focus:
  
  • “Patient First” will be the driver for all that we do
  
  • Our brand of the Toyota Production System will be the “Virginia Mason Production System”
  
  • Create an environment in which our people feel safe and free to engage in improvement - “No Layoff Policy”
The Plan (Continued)

- Implement a company-wide defect alert system called “The Patient Safety Alert System”

- Encourage innovation

- Create a prosperous economic organization. We will primarily reduce costs by eliminating waste

- Require leadership accountability
VMPS in Action

- 5-S (Sort, simplify, standardize, sweep, self-discipline)
- RPIW (Rapid Process Improvement Workshop)
- 3-P (Production, Preparation, Process)
- Super Flow
- Daily work life
What about Customers?

- Patient Satisfaction and Service
  - Always puts the patient first
  - Pre-surgery clinic
  - Standard educational materials
  - Standard work “scripts” at call center
  - Clean, clutter free environment
  - Less waiting
  - More about the patient
  - Better Flow
What about Staff?

• Staff satisfaction
  • Enthusiastic team participation from staff
  • Ensuring work at Virginia Mason - No Layoff Policy
  • Concern about jobs changing which tend to go away upon completion
  • Physicians are no different than staff
  • Cross Training becoming widespread
  • Certification of all Executives and Admin Directors
  • >99% of staff attended Introduction to Lean
  • Some leaders have a harder time ....
  • Skepticism is dwindling....
What about Quality?

- Quality
  - Reduction in variation with standard work
  - Reduction in handoffs by creating flow and eliminating non-value added work
  - Reduction in defects and errors
Standard Work = Evidence-Based + Best Practice

EXISTING EVIDENCE-BASED GUIDELINES (National, Regional, Local)

EMERGING EVIDENCE, GOOD GUESSES, LOCAL TALENT

LEAN / RPI
Value
Flow
Waste
Kaizen

STANDARD WORK (Best Practices)
What about Safety?

• Safety
  • Reduction in clutter (environment)
  • Standard work ensures the best practices are consistently used (patient and staff safety)
  • Reduction in error - Mistake Proofing
  • “It Takes Two” patient safety initiative
  • Patient Safety Alert (PSA) in active use
Stopping the Line™

Virginia Mason’s Patient Safety Alert System™
JUST IN TIME
What is needed
In the amount needed
At the time needed
At the place needed

JIDOKA
One-by-one detection
and response to every
abnormality: “Stopping
the line”

People
Materials
Machines

Constant Improvement

Leveled Production
Elimination of Waste
Patient Safety Alert™

Process Overview

- Report if likely to cause significant harm
- 24/7 hotline, procedure, and staffing
- “Drop and run” commitment (code)
- Evaluate and fix immediately
- Or the stop process, do a root cause and restart when fixed (<29 days)
Patient Safety Alert Results as of 5/31/04

- 201 Patient Safety Alerts
  - Diagnosis/Treatment 16
  - Medication Errors 32
  - Systems 119
  - Equipment 21
  - Conduct 10
- Average # of PSAs/month appears to be leveling off
  - 2002- 3/month
  - 2003- 10+/month
  - 2004- 11+/month
- Average days to completion - 6.4
- Individuals taken off line - 15
- Processes take off line - 7
Patient Safety Alert (PSA Recap* (as of 5/31/04

*PSA Policy/Procedure Initiated 8/1/02

<table>
<thead>
<tr>
<th>Category:</th>
<th>2002 YTD (5 month)</th>
<th>2003 YTD (12 month)</th>
<th>2004 YTD (5 month)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical Dx/Tx</td>
<td>6</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>Medication</td>
<td>4</td>
<td>17</td>
<td>11</td>
</tr>
<tr>
<td>Systems</td>
<td>4</td>
<td>74</td>
<td>41</td>
</tr>
<tr>
<td>Facilities/Equipment</td>
<td>1</td>
<td>22</td>
<td>1</td>
</tr>
<tr>
<td>Conduct/Scope of Practice</td>
<td>3</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>Total PSAs</td>
<td>18</td>
<td>125</td>
<td>58</td>
</tr>
<tr>
<td>PSAs/Month</td>
<td>3.6</td>
<td>10.4</td>
<td>11.6</td>
</tr>
<tr>
<td>Average Days to Completion</td>
<td>18.4</td>
<td>13</td>
<td>6.4</td>
</tr>
<tr>
<td>Processes Taken Off-Line</td>
<td>1</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Employees Taken Off-Line</td>
<td>6</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Employees Terminated</td>
<td>2</td>
<td>3</td>
<td>2</td>
</tr>
</tbody>
</table>
RPIW Example Areas

- GI Ambulatory
- HR Business Partner
- PACU
- Radiology
- Hospital 3P
- Periop Induction Room
- Adult Ambulatory Visit Flow
- Dermatology 3P
- Ambulatory Specialty Scheduling
- Federal Way Specialty Clinic and ASC
- Disease State Management
- Supply Chain
- Skilled Nursing Placements
- Specimen Collection Mistake Proofing
- Rehab Medicine Patient Flow
- Inpatient Medication Integration
- Histology Slide Turn-out
- Inpatient Incomplete Chart Processing
- Lindeman Pavilion Pharmacy
- Human Resources Service and Processing
- Orthopedics/Sports Medicine
- Clinical Research
- PM & R
- Ambulatory Neurology
- Ambulatory Transplant
- Cardiology
- Emergency Department
Electrophysiology Workshop

An example of a Rapid Process Improvement Workshop
Improving the flow of patients through the cardiac procedures labs to the PCU was the focus of the latest Rapid Process Improvement Workshop. The EP Cath Lab to PCU workshop team completed their work on September 12, 2003.

Here’s the Team!

Team members from left to right: Gordon Kritzer, MD, Gary Kaplan, MD, Robert Mecklenburg, MD, Julie Legaros, RN, Chris Fellows, MD, Steven Piccolo, RN, Jackie Kubu, Janette Trube, Kellie Bradfield, Julie King, Melanie Winters, RN (Team members are holding a sign that reads, “We are Reinventing Healthcare”)

Workshop Leader was: Gary Kaplan, MD
OPI Workshop Leader: Chris Backous
Team Leader was: Julie King
Sub-Team Leader was: Robert Mecklenburg, MD

Team Goals:
Reduce non-value added time in the value stream for patient and improve efficiency of performance for the Section of Cardiology, Cath and EP Labs, and PCU by:
• Level loading cardiac procedures across the days of the week and hours of the day, and
• Coordinating care between the Section of Cardiology, the cath lab and PCU.
# Target Progress Report

**Team Name:** EP/Cath Lab to PCU Flow  
**Department:** Heart

**Product/Process Summary:**  
Outpatient scheduling of a cardiac catheterization (cath) or electrophysiology (EP) procedure through patient discharge from the Procedure Care Unit (PCU)  
**Goals:** Level Loading, Improved Coordination

**Team Leader:** Julie King/Bob Mecklenburg  
**Workshop Leader:** Gary Kaplan

<table>
<thead>
<tr>
<th>Metric</th>
<th>Baseline</th>
<th>Target</th>
<th>Day 5</th>
<th>% Change</th>
<th>Key Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Space</strong> (square feet)</td>
<td>1,334 sq feet</td>
<td>0</td>
<td>0</td>
<td>100%</td>
<td>Enhanced level loading of PCU patient flow eliminating need to use hospital beds for overflow</td>
</tr>
<tr>
<td><strong>Inventory</strong> (dollars)</td>
<td>$1,901.70</td>
<td>$950</td>
<td>$950</td>
<td>50%</td>
<td>Work with supplier to increase frequency reducing need for stock on hand by 50%</td>
</tr>
<tr>
<td><strong>Staff Walking Distance:</strong></td>
<td>140 feet</td>
<td>70 feet</td>
<td>12 feet</td>
<td>91%</td>
<td>AM supermarket to avoid unnecessary walking-kanbans in place to restock as needed preventing pile-up of inventory in supermarket</td>
</tr>
<tr>
<td><strong>Parts Travel Distance</strong> (feet)</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
</tbody>
</table>
| **Work In Process (WIP):** Number of EP and Cath patients waiting for their procedure. WIP is determined by patients scheduled for procedures past current day | EP: 58  
Cath: 24 | EP: 29  
Cath: 12 | EP: 25 in 3 weeks  
Cath: 24 | EP: 56%  
Cath: 0% | Increased flow reduces Que and WIP |
|---|---|---|---|---|---|
| **Quality (defects)(%):**  
a. Daily Procedure Delays (based on 3 days of data collection in the labs)  
b. Patients without a medical information packet at time of check-in to PCU. Baseline number represents one month of data collection | a. EP:17%; Cath: 35%  
b. 12% | a. EP: 0; Cath: 0  
b. 0 | TBD | TBD | Externallizing set-up for procedures and ensuring data collection done in clinic at time of scheduling as well as developing standard work and clear MD expectations reduces defects ie patients should not arrive in PCU with incomplete information |
| **Productivity Gain (FTE):**  
1. Average monthly overtime hours for Cath and EP staff (excludes call-back Overtime). Baseline based on 6 months of data. | EP: 65 hours  
(.37 FTE)  
Cath: 63 hours  
(.36 FTE) | EP: 0  
Cath: 0 | TBD | 0%  
(TBD) | Scheduling level loading increases number of procedures within scheduled hours allows elimination of OT and increased capacity |
| **Environmental, Health & Safety (5S):**  
New EP Lab | 3 | 4 | 4 | 100% | New EP lab |
| **Set-up Reduction (minutes):** Cardiology CSR information preparation (from medical information collection by CSR through authentication by physician and sending to PCU ) | Cath: 255 minutes  
EP: 1,467 minutes | Cath: 9 minutes  
EP: 9 minutes | Cath and EP: 18 minutes | Cath: 97%  
EP: 99% | See above |
| **Remarks:**  
*TAKT Time is based on the following information:  
Cath: An average of 45 patients have procedures Monday-Friday of each week, 9 patients per day if procedures were level loaded. Available time for the lab is 9 hours per day (540 minutes). 540/9=60 minutes  
EP: An average of 25 patients have procedures Monday-Friday of each week, 5 patients per day if procedures were level loaded. Available time for the lab is 56 hours per week (3,360 minutes). 3360/25=134 minutes |
3Ps Production, Preparation, Process

- Cancer
- Hospital
- Dermatology
- GI
- Hyperbarics
Commitment and Deployment

- Leadership and management
- Introduction to Lean
- Certification Track
- Lean Mastery
- Japan Gemba
- Kaizen Fellowship
The Returns: Cost Avoidance

- $1M Capital Savings for Hyperbaric Chamber for 3P
- $1-3M Endoscopy Suites now staying in current location
- $1.8M Breast Cancer mammography Suites 9200 sq to 5400 sq post 3P
- $6M Surgery Suites budgeted and planned - now not building
- New outpatient building
# Target Progress Report

Team Name: Lean Leadership Team  
Client: VMMC  
Date: 4/30/04  

**Product/Process Summary:** 2003 34d-4th Q RPIW Target Sheet Rollup  
Team Leaders: G. Kaplan/M. Rona  

<table>
<thead>
<tr>
<th>Metric (units of measurement)</th>
<th>Baseline</th>
<th>Target</th>
<th>90-Day</th>
<th>Percent Change</th>
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</thead>
<tbody>
<tr>
<td>Space (square feet)</td>
<td>11,541 sqft</td>
<td>5,770.5 sqft</td>
<td>6,323 sq ft</td>
<td>45.2%</td>
</tr>
<tr>
<td>Inventory</td>
<td>$1,957,186</td>
<td>$195,718.60</td>
<td>$971,661.50</td>
<td>50.4%</td>
</tr>
<tr>
<td>Staff Walking Distance (feet)</td>
<td>148,577 ft</td>
<td>74,288.5 ft</td>
<td>84,310 ft</td>
<td>43.3%</td>
</tr>
<tr>
<td>Parts Travel Distance (feet)</td>
<td>17,876 ft</td>
<td>8,938 ft</td>
<td>2,517 ft</td>
<td>85.9%</td>
</tr>
<tr>
<td>Lead Time (minutes)</td>
<td>272,557’</td>
<td>136,278’</td>
<td>59,216’</td>
<td>78.3%</td>
</tr>
<tr>
<td>Work in Process (WIP) (units)</td>
<td>624,573</td>
<td>312,286</td>
<td>241,584</td>
<td>61.3%</td>
</tr>
<tr>
<td>Quality (defects) (%) (a)</td>
<td></td>
<td>20%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Productivity Gain (b)</td>
<td>83.4</td>
<td></td>
<td>57.2</td>
<td>31.4%</td>
</tr>
<tr>
<td>Environmental, Health &amp; Safety (5S) (levels 1 thru 5)</td>
<td>5 units at 2 2 units at 3 5 units at 3 6 units at 4</td>
<td>All units at 4</td>
<td>3 units at 3 15 units at 4</td>
<td></td>
</tr>
<tr>
<td>Set-up Reduction (minutes)</td>
<td>3,656’</td>
<td>1,828’</td>
<td>252’</td>
<td>93.1%</td>
</tr>
</tbody>
</table>

**Remarks:** Additional revenue gains:  
$21,215 annually eliminated in nursing overtime costs / Chemo Delivery RPIW  
$9,160 saved by reduced need for vendor services/Coding RPIW
## Leapfrog 2003 Survey Results

<table>
<thead>
<tr>
<th>Leapfrog Standard</th>
<th>CPOE</th>
<th>ICU</th>
<th>Volumes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CPOE</td>
<td>ICU</td>
<td>CABG Outcomes Rank</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>PCI Outcomes Rank</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>AAA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Esophagectomy</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Pancreatic Resection</td>
</tr>
<tr>
<td><strong>Virginia Mason</strong></td>
<td>🔷️</td>
<td>🔷️</td>
<td>Above national average</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Above national average</td>
</tr>
<tr>
<td>Evergreen</td>
<td>🔷️</td>
<td>n/a</td>
<td>Did not participate</td>
</tr>
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<td></td>
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<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td></td>
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</tr>
<tr>
<td>Northwest</td>
<td>🔷️</td>
<td>🔷️</td>
<td>Did not participate</td>
</tr>
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<td></td>
<td></td>
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<td>Did not participate</td>
</tr>
<tr>
<td>Overlake</td>
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<td>🔷️</td>
<td>Did not participate</td>
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<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>Did not participate</td>
</tr>
<tr>
<td>Swedish - 1st Hill</td>
<td>🔷️</td>
<td>🔷️</td>
<td>Did not participate</td>
</tr>
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<td></td>
<td></td>
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<td>Did not participate</td>
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<tr>
<td></td>
<td></td>
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<td>Did not participate</td>
</tr>
<tr>
<td>Swedish - Prov</td>
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<td>🔷️</td>
<td>Did not participate</td>
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<td>Valley Medical</td>
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<td>n/a</td>
</tr>
<tr>
<td></td>
<td></td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>n/a</td>
</tr>
</tbody>
</table>

- 🔷️️ ~ Fully implemented Leapfrog’s recommended safety practice
- 🔷️️️ ~ Good progress in implementing Leapfrog’s recommended safety practice
- 🔷️️️️ ~ Good early stage effort in implementing Leapfrog’s recommended safety practice
- 🔷️️️️️ ~ Willing to report publicly; did not yet meet Leapfrog’s criteria for a good early stage effort
- N/A ~ Not applicable (e.g., IPS standard does not apply because hospital does not have an ICU.)
Performance of Virginia Mason

- Leapfrog
- Top 100 Hospitals - Solucient
- Healthgrades
- Economic
  - 2001 - $ 22,239,000
  - 2002 - $ 22,917,000
  - 2003 - $ 22,000,000
  - BBB+ to A-
To Change Medicine.....
Change Your Mind

- Provider First
- Waiting is Good
- Errors are to be Expected
- At-risk Employment
- OTJ Training
- Diffuse Accountability
- Add Resources
- Reduce Cost
- Retrospective Quality Assurance
- Management Oversight
- We Have Time

- Patient First
- Waiting is Bad
- Defect-free Medicine
- Guaranteed Employment
- Explicit Training
- Rigorous Accountability
- No New Resources
- Reduce Waste
- Real-time Quality Assurance
- Management On Site
- We Have No Time
If you are dreaming about it...
You can do it.”

Chihiro Nakao