

Expectations about Outcomes in Healthcare

Perfection is impossible



Injuries are inevitable

Perfection is possible

Injuries are avoidable

The customer with a defective product is 100% dissatisfied



(The other 999 good products are invisible)

Virginia Mason Production System

Constant
Improvement

JUST IN TIME

What is needed
In the amount needed
At the time needed
At the place needed

People

Materials

Machines

JIDOKA

One-by-one detection
and response to every
abnormality: "Stopping
the line"

Leveled Production

Elimination of Waste

Theory of “Stopping the Line”

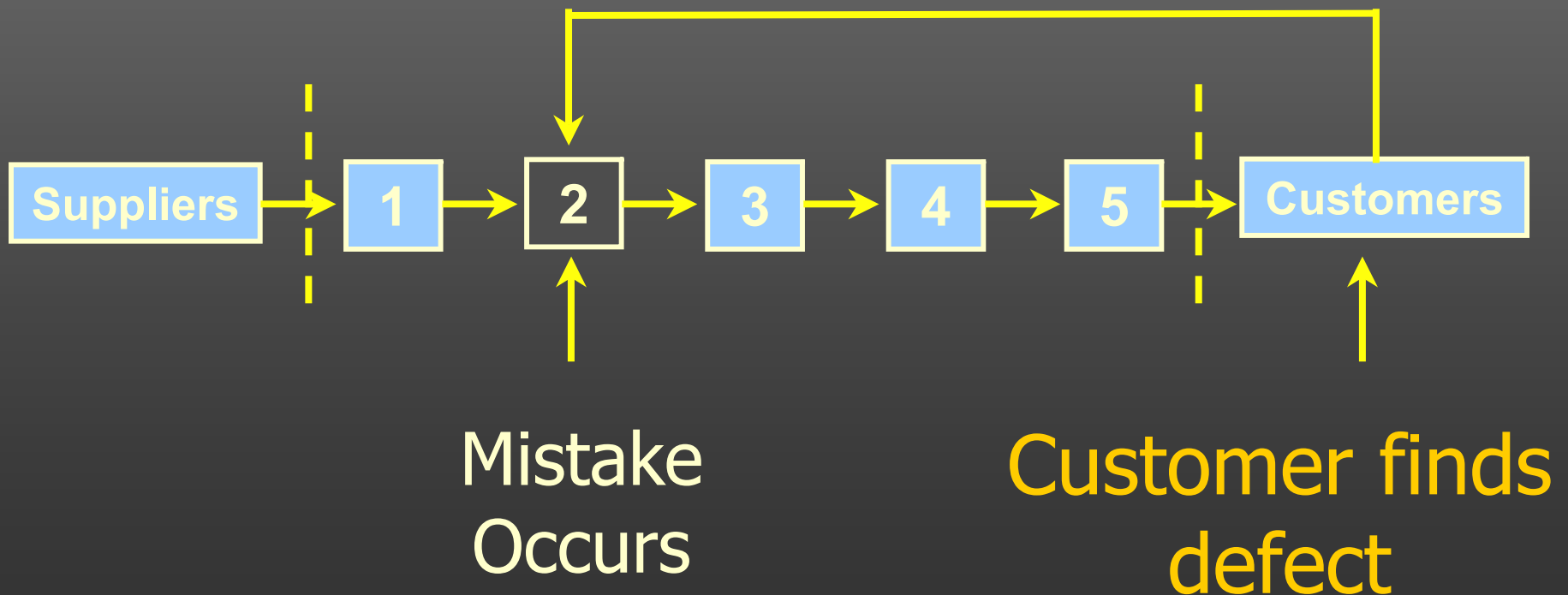
- **Mistakes** are inevitable...but reversible
- **Defects** are mistakes that were not fixed soon enough...and are now relatively permanent
- If you fix mistakes soon enough, your work will have **zero defects**
- Mistakes are least harmful and easiest to fix the closer you get to the time and place they arise (the reverse is also true)

The Basic Strategy for Stopping the Line

- Inspect, stop, and fix **at the source**
- Every employee is an inspector
- Every employee can stop the line
- When you can't fix on-the-spot: **STOP**

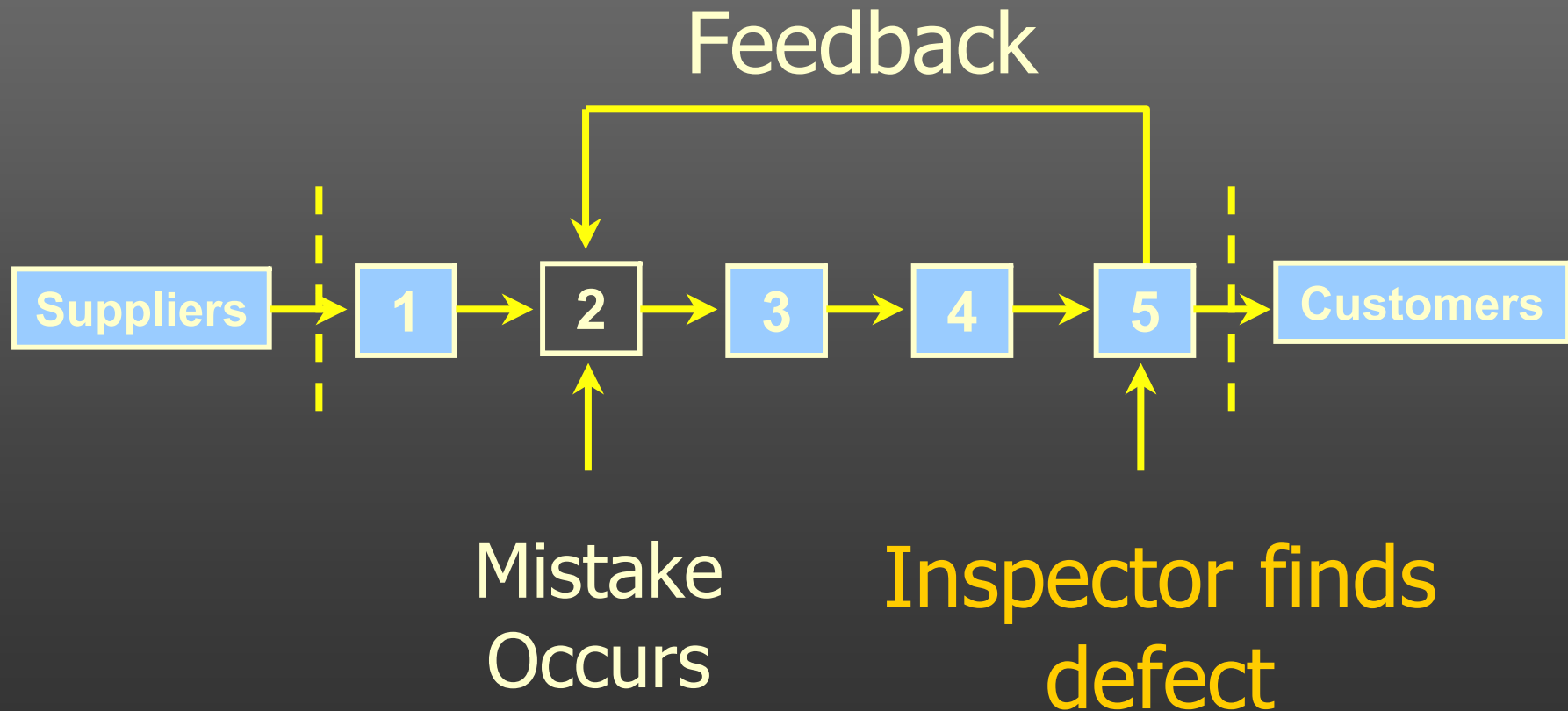
Level 1: Customer Inspects and Finds Defect (OIG, DOH, Malpractice Suit)

Feedback

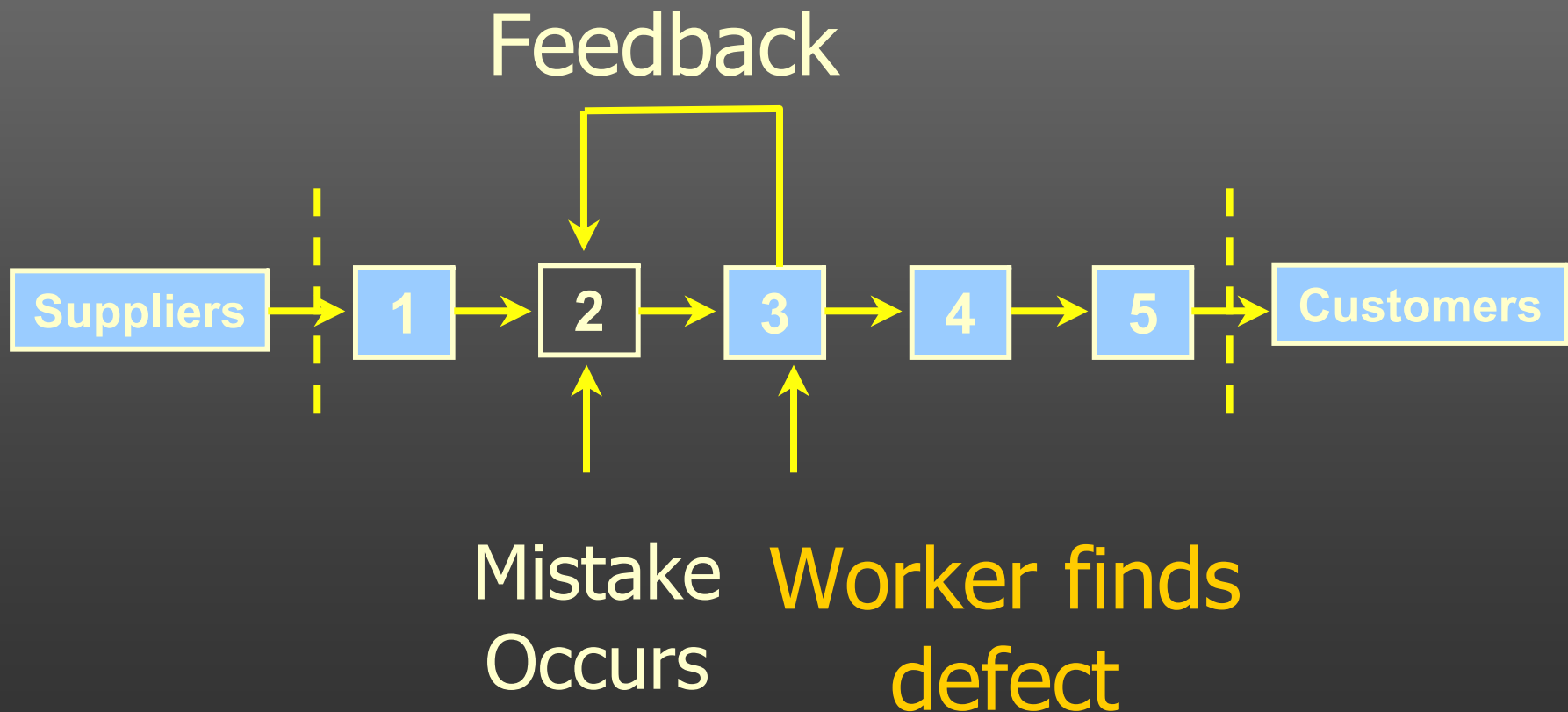


Level 2:

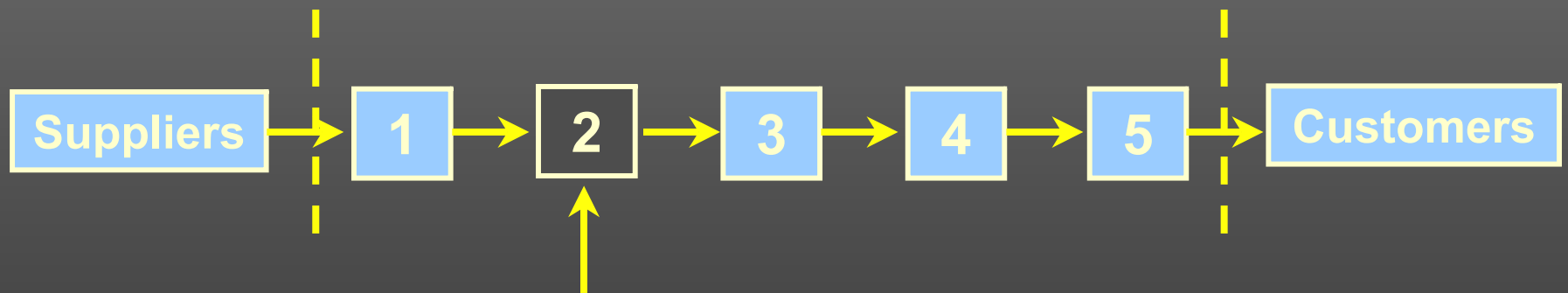
Company Inspects at End of Process
(QA, Audit, Narcotic Count)



Level 3: Work Unit Inspects and Corrects (Needle and sponge count)

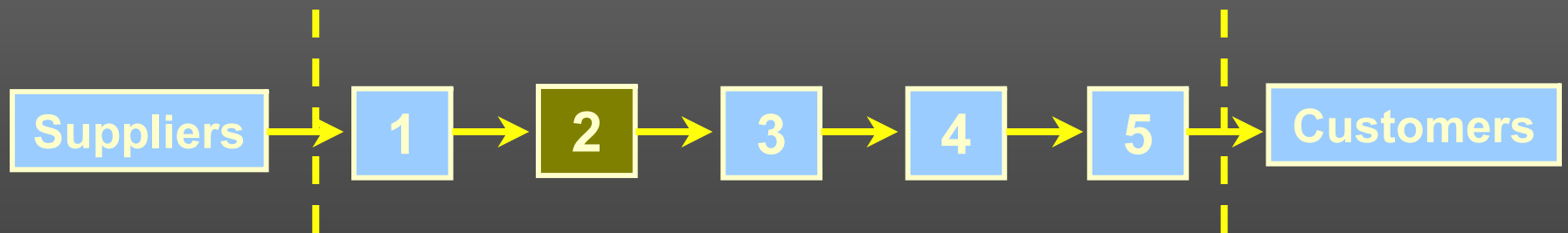


Level 4: **Self-Inspection and Correction** (Patient ID, Surgery Site Check)



Mistake
detected and
corrected

Level 5: Process redesign to eliminate mistakes (CPOE)



OR gas hoses are color coded
and have unique connectors



Level 5 Inspection

Zero Defects – For Industry

- What the customer really wants
- Distinguishes mistakes from defects
- Essential elements:
 - Check each product (one-by-one)
 - Check at the source
 - Stop and fix at the source
- Applies to any product made by a defined process

Zero Defects - for Healthcare Safety

Healthcare is defined as a product having
safety in every step

Every safety mistake should be corrected
as soon as possible
as close as possible to its point of origin

You can stop the line for safety

The goal is zero safety defects in healthcare

Patient Safety Alert Results as of 12/31/04

- 347 Patient Safety Alerts
 - Diagnosis/Treatment 31
 - Medication Errors 53
 - Systems 196
 - Equipment/Facilities 45
 - Conduct 22
- Average # of PSAs/month is increasing
 - 2002- 3/month
 - 2003- 10+/month
 - 2004- 17/month
- Average days to completion – 14
- Individuals taken off-line – 25
- Processes/Equipment taken off-line – 13

Case Studies

Case Study 1:

Numbers and Abbreviations

Case 1: Numbers and Abbreviations

ED	Planning - OK to Return to Pacific	
<input type="checkbox"/> Anticipate D/C in 48 hrs - Use D/C Planning Protocol		
ANOTHER BRAND OF DRUG IDENTICAL IN FORM AND CONTENT MAY BE DISPENSED UNLESS CHECKED <input type="checkbox"/>		
DATE	TIME	BEEPER
	Regimen	RH4 ?
3) MSW - D/C Planning		
4) AM Labs: BMR		
5) Atenolol 25 mg PO QD		
<input type="checkbox"/> Anticipate D/C in 48 hrs - Use D/C Planning Protocol		

Case 1: Numbers and Abbreviations

Day 1-2 (Issues Identified)

- The physician writes an order that retrospectively was unclear, the intended 2 looked like a 7
- The physician wrote an order using an unacceptable abbreviation (QD)
- The physician did not discuss the plan of care with the nurse prior to leaving the floor
- The HUC submitted the order with an unacceptable abbreviation

Case 1: Numbers and Abbreviations

- DAY 1-2 (Issues Identified)
- The pharmacist processed an order with an unacceptable abbreviation.
- Nursing did look at the order sheet and believed the 2 was a 7 but did not sign off the order on the Physician's Order Sheet.
- Nursing gave the medication even though it had an unacceptable abbreviation.
- Nursing had not had a chance to review the care plan in the Progress Notes.

Case 1: Numbers and Abbreviations

Day 2-3 (Improvement)

Corrective Action Plan in development:

- Require number 7 be crossed on medication orders and audit.
- Improved communication between caregivers with plan and safety concerns highlighted
- Re-educate and audit staff on following standard work for unacceptable abbreviations and signing off orders.

Case 1: Numbers and Abbreviations

Day 3 (Improvement Continued)

Corrective Action Plan in development:

- Multidisciplinary case review
- Ultimately, mistake proofing will occur with the implementation of CPOE in 3/2005

VMPS Patient Safety Alert TM

Summary

- A key component of Lean (Jidoka)
- A process for producing safe healthcare
- Goal = zero defects
- Based upon Lean Production methods
 - Source inspection
 - One-by-one inspection
 - Stop and fix at the source

Virginia Mason Results

- The Cost of Error
- Mistake Proofing and Improvement
- FTE Trends
- Learnings from Production Preparation Process (3P)
- Cost Avoidance and Savings
- RPIW Roll Up

The Cost of Error

Ventilator Acquired Pneumonia

- 2002 Cases 34 Est. Deaths 5
- 2002 Cost \$ 500,000

Professional Liability Expense

- Claims Paid ² \$ 4.6 Million
- Claims Paid ³ \$ 4.5 Million

² 1999 - 2003 Average

³ Projected 2004

Mistake Proofing

Ventilator Acquired Pneumonia

- 2002 Cases 34 Est. Deaths 5
- 2002 Cost \$ 500,000
- 2004 Cases * 4 Est. Deaths <1
- 2004 Cost * \$ 60,000

* Projected 2004

Staffing Trends

Full Time Equivalents

1996:	2890	
1997:	3264	▲
1998:	3467	▲
1999:	3528	▲
2000:	3612	▲
2001:	3647	▲
2002:	3656	▲
2003:	3581	▼
2004:	3562	▼

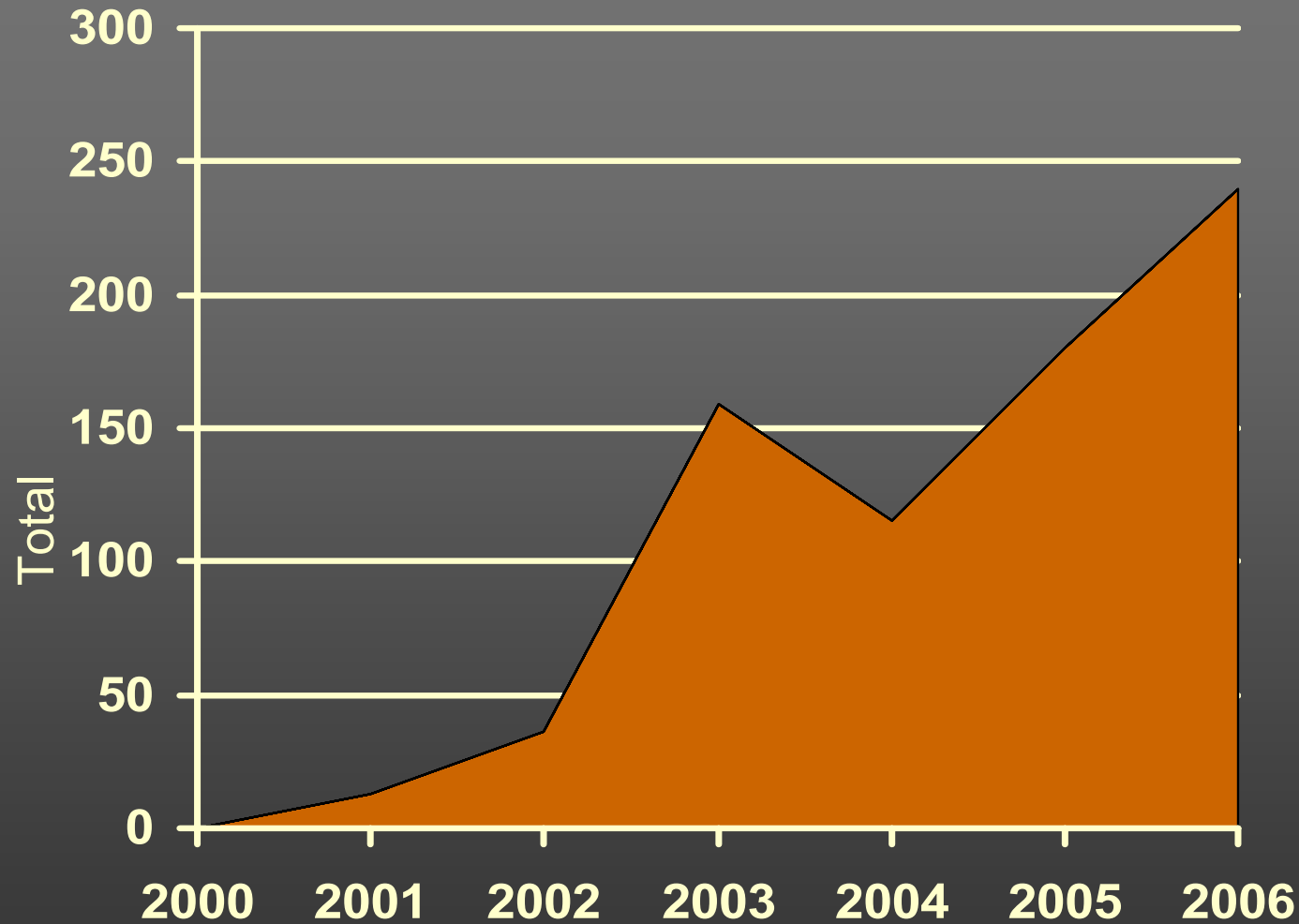
3P's: Production, Preparation, Process

- Cancer
- Hospital
- Dermatology
- GI
- Hyperbarics

Cost Avoidance

- 1M Capital Savings for Hyperbaric Chamber from 3P
- 1-3M Endoscopy Suites now staying in current location
- 6M Surgery Suites budgeted and planned - now not building
- Hospital 3P
 - Lead Time, Staffing, Space
- Cancer 3P
 - Same amount of space 120 pts per day to 188 pts per day
(57% increase)
 - Patient Travel -1600 ft to 375 ft. (76% reduction)

Virginia Mason RPIW Activity



Total Kaizen Results

Total Results 2002-2004

175 RPIW's thru 3/31/04

Inventory	\$1,350,000		Down 53%
Productivity	158	FTE's	36% Redep.
Floor Space	22,324	SQ. Ft.	Down 41%
Lead Time	23,082	Hours	Down 65%
People Distance Traveled	267,793	Feet	Down 44%
Product Distance Traveled	272,262	Feet	Down 72%
Setup Time	7,744	Hours	Down 82%

Validated Industry Averages

Direct Labor/Productivity Improved	45-75%
Cost Reduced	25-55%
Throughput/flow Increased	60-90%
Quality (Defects/Scrap) Reduced	50-90%
Inventory Reduced	60-90%
Space Reduced	35-50%
Lead Time Reduced	50-90%

Summarized results, subsequent to a 5-year evaluation, from numerous companies (over 15 aerospace-related). Companies ranged from 1 to >7 years in lean principles application/execution.

Performance of Virginia Mason

- Leapfrog
- Top 100 Hospitals - Solucient
- Healthgrades
- Economic
 - 2001 - \$ 22,239,000
 - 2002 - \$ 22,917,000
 - 2003 - \$ 22,000,000
 - 2004 - \$?
 - BBB+ to A-

Leapfrog

Leapfrog 2003 Survey Results

Leapfrog Standard	CPOE	ICU	Volumes						
			CABG	CABG Outcomes Rank	PCI	PCI Outcomes Rank	AAA	Esophagectomy	Pancreatic Resection
Virginia Mason				Above national average		Above national average			
Evergreen			n/a	n/a		Did not participate		n/a	
Northwest				Above national average		Did not participate			
Overlake				Did not participate		Did not participate			
Swedish - 1st Hill				Did not participate		Did not participate			
Swedish - Prov				Did not participate		Did not participate		n/a	
UW				Above national average		Above national average			
Valley Medical			n/a	n/a	n/a	n/a			

- ~ 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.)

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

Commitment and Deployment

- Leadership and management
- Introduction to Lean
- Certification Track
- Lean Mastery
- Japan Gemba
- Kaizen Fellowship

Ongoing Challenges

- Culture Change
- Professional Autonomy
- “People are Not Cars”
- Belief in Zero Defects
- Rigor, Alignment, Execution

“This Day brings a lot of Rearrangement”

**Pastor Paul Stoot, Sr.
November 27, 2004**

EXECUTIVE LEADERSHIP GOALS - 2004

QUALITY	SERVICE	STAFF	EFFICIENCY
1. JCAHO	5. APPOINTMENT ACCESS	9. COMMUNICATION WITH STAFF	10. PACMED TRANSITION
2. CPOE	6. PHONE ACCESS		11. CANCER MODEL LINE
3. PATIENT ID	7. SERVICE RECOVERY		12. 5S ADMIN. PROCESSES
4. PUBLICIZE QUALITY OUTCOMES	8. FACILITIES PLANNING		13. EFFICIENCY BY 5%

EXECUTIVE LEADERSHIP GOALS - 2005 Proposed

1. QUALITY OUTCOMES	2. PATIENT SAFETY	3. INPATIENT ADMISSION ACCESS	4. OUTPATIENT APPOINTMENT ACCESS	5. SERVICE RECOVERY
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Executive Leadership Goal - 2005

Ensure the Safety of our Patients

**“You Can’t Cross the Sea
Merely by Staring at the Water”**

Rabindranath Tagore

ThedaCare System for Improvement

Removing waste, getting lean,
and preparing for our future

IHI Call to Action Series: Driving out Waste
Becomes the Strategy for Healthcare
Organizations

February 16, 2005



1

Session Goals

- It is **not** our goal today to “teach lean” or to “cheer lead” particular projects.
- Rather, it is to define, for all managers, the ThedaCare System of Improvement
- Most importantly, we need to create dialogue among managers regarding the *embedding of this System into the ThedaCare Culture*



2

Our System Goals

The goals remain the same. We must simultaneously...

- Improve the quality of what we do to world class levels (95th percentile).
- Become the Healthcare Employer of Choice – Fortune 100 List of Best Employers.
- Lower our costs so we can lower the price paid for our services

THE DA  CARE

3

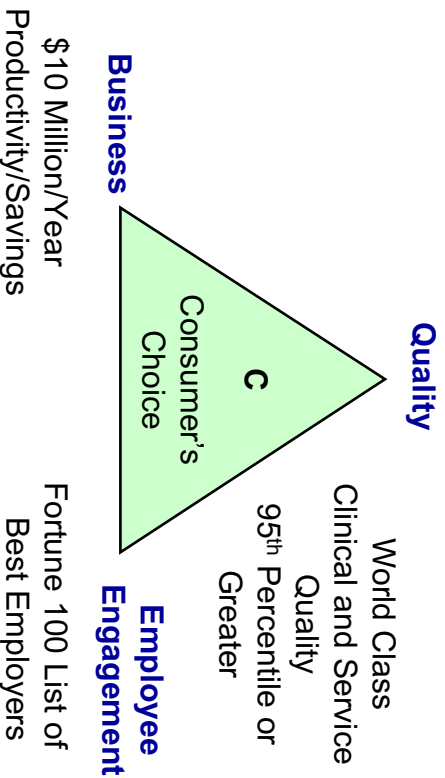
This is about how we are going to secure our future...

- By being proactive, not reactive, to increasing demand for high quality/low cost healthcare. We cannot continue increasing our costs to the detriment of our customers.
- By actively engaging customers, staff, and providers in the improvement efforts.

THE DA  CARE

4

**Our Overall Metrics have not
changed...**



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5

ThedaCare's Mission
the reason we are together

“ThedaCare’s mission is to improve the
health of our communities.”

THEDA**CARE**

6

ThedaCare's Vision

a picture of the ideal state to be achieved

“To always set and deliver the highest standard of health care performance in measurable and visible ways so our customers are confident they are making the right decision in choosing us.”

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7

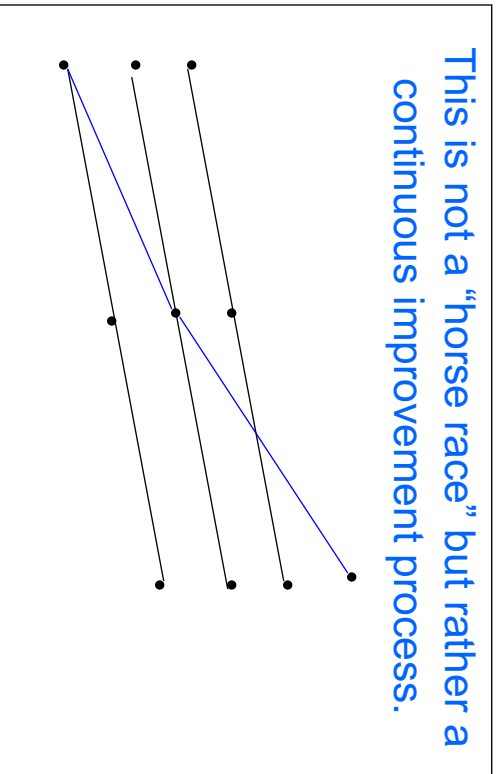
ThedaCare's Purpose

We exist to serve our customers.
Our goal is to provide world class clinical and service quality.

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This is not a “horse race” but rather a continuous improvement process.



THE D A  CARE

9

ThedaCare's Culture

- Culture of constant improvement.
- Most important attribute is the thinking capability of our people.
- Constantly improving processes to deliver a perfect experience for customers will be a never-ending journey.

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10

Productivity : It's a Matter of Life and Death

- “ Companies that are more efficient than their competitors in providing customers with high quality goods and services will thrive. *Companies that are less efficient than their competitors will perish.*”

Source: The Toyota Production System, Toyota Motor Corp.

THE D A  CARE

11

The ThedaCare Improvement System

The 3 tenets for change:

- Respect for people.
- Teaching through experience.
- Focus on world class performance.

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12

Respect for People

What it is:

- Error-free practice
- Timely service
- No waste
- No lay-off philosophy
- Professionals who work together to improve performance

What it is not:

- Long wait times
- Creating/doing non-value-added work
- Wasted time
- Wasted materials
- People focused on tasks rather than patient outcomes

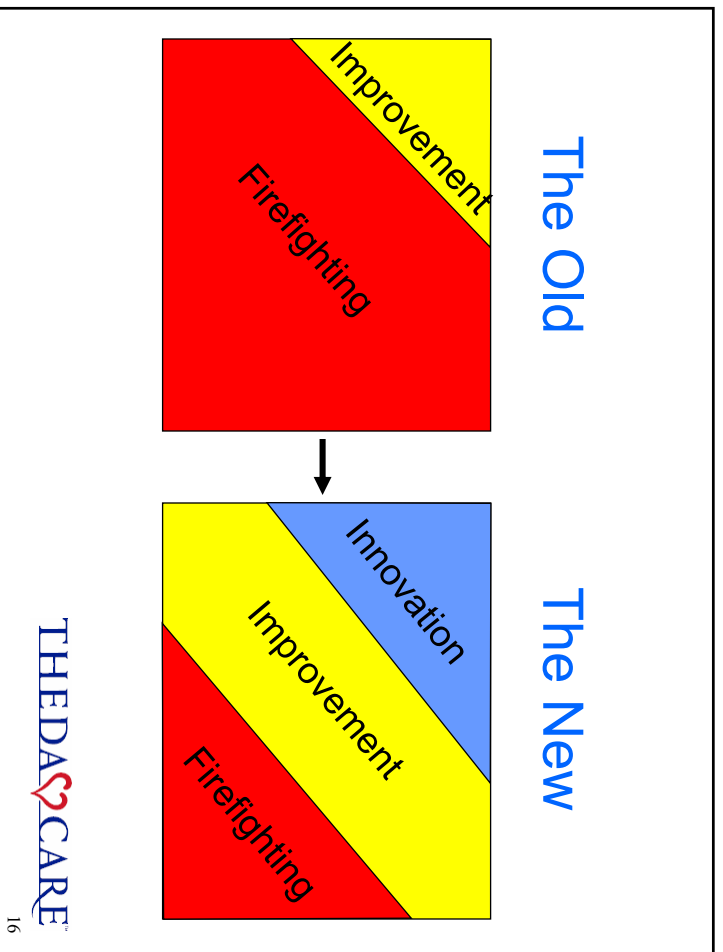
Teaching Through Experience

We will learn by doing!

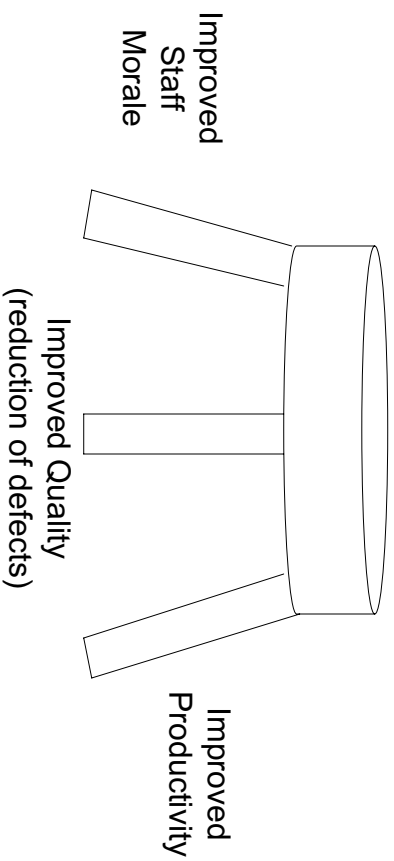
- “Dirty Hands” approach to learning
- Rapid, real time decisions
- Focus on learning from significant changes in processes
- Bias for taking action now
- Not just for a few “chosen” employees – all will be engaged over time.

Focus on World Class Performance

- Past accomplishments do not predict the future
- Necessary to stay competitive over time
- Evidence-based and data-driven, and customer focused
- Commitment to public reporting of results
- Creating standard work in both administrative and clinical processes



The 3 – Legged Stool of the ThedaCare Improvement System



Lean tools and principles can and do work everywhere...including healthcare. We will be using these tools as one very important approach in our cultural change process.

The New Culture will be Counter –Intuitive for awhile.....

- Reducing waste and non-value added work will come before adding technology, building and manpower.
- Redeploy the *best* employees, not the poor or marginal performers.

This will require new behaviors....

- Smaller, “right-sized” groups of workers or technologies in “cells” rather than large, cumbersome processes.
- Strong, sometimes directive leadership, augmenting more traditional team approaches.
- Less batching of work, in favor of “right now”, real time action.

ThedaCare Monthly Tracking Summary

	All Divisions	YTD
	DEC 2004	YTD
# of Value Streams	3	16
# of Events-First Pass	10	68
# of Events-Second Pass	1	2
# of Events-Third Pass	0	0
# of Projects	9	48
QUALITY		
Significant Quality Improvements	2	21
Significant Service Improvements	12	60
EMPLOYEE ENGAGEMENT		
Total Empl Engagement	85	859
New Empl Engagement	58	606
FINANCIAL		
FTE Reduction	2.9	33.55
Labor/Benefit Savings	\$ 219,177	\$ 1,485,857
AR (3.5% of cash flow)	\$ 5,000	\$ 365,350
Capital Avoidance	\$ -	\$ -
Revenue	\$ 1,000	\$ 1,000
Supplies	\$ 8,215	\$ 356,965
Other Savings +	\$ 45,000	\$ 1,130,140
Total Savings	\$ 278,392	\$ 3,339,312

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21

Some examples of our experience so far....

- Saved \$154,000 in the Cath Lab supply procurement processes.
- In 2004, we reduced A/R from 56 to 44 days equating to about \$12M in cash flow.
- Redeployed staff in several areas amounting to the equivalent of approximately 33+ FTEs.

as of 1/21/05

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22

Some examples of our experience so far...

- Improved TCP phone triage times by 35%, reducing hold time from 89 to 58 seconds.
- Reduced TCP phone triage abandonment rates by 48% from 11.6% to 6.0%.
- Radically reduced the Hospital admission clinical documentation cycle time (50%).
- AMC Med/Surg decreased medication distribution time from 15 min/med pass to 8 min/med pass impacting 4.1 FTEs of staff time.

*data as of 1/21/05
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23

If we are to be the best at what we do, we must have the ability to change ourselves rapidly, eliminate waste, reduce errors, and improve measurable results dramatically.



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24

Going Lean in Health Care

HOW TO PARTICIPATE:

Step 1: Log on to the IHI.org website at <http://www.ihl.org/ihl>. If you have not yet registered with the IHI.org site, you can do so by going to the Registration Page (link to <http://www.ihl.org/ihl/users/register.aspx>).

Step 2: From the IHI.org website home page, click on Community/Discussion Groups, located on the left hand side of your screen (<http://www.ihl.org/ihl/forums/Default.aspx>).

Step 3: Click the **The Commons** Discussion Group.

Step 4: Select **The Calls to Action Discussion Groups** link, select the **Going Lean in Health Care** discussion.

POST A NEW COMMENT OR QUESTION:

Step 1: Click **Create a New Thread**.

Step 2: Enter a topic name in the **Subject** field, and then enter your comment or question in the **Message** field.

Step 3: Click **Preview** to review your message.

Step 4: Click **Post** to post your message.

ADD COMMENTS TO TOPIC:

Step 1: Click the **Thread** title.

Step 2: Click **Reply**.

Step 3: Again, enter your comment in the **Message** field.

Step 4: Click **Preview** to review your message.

Step 5: Click **Post** to post your message.

HOW TO COMPLETE A CONFERENCE EVALUATION AND RECEIVE CONTINUING EDUCATION CREDITS:

Calls to Action participants can earn continuing education contact hours for participating in the audio conference call on *Going Lean in Health Care: Driving Out Waste Becomes the Strategy for Health Care Organizations* by completing an online conference evaluation. To complete the evaluations:

1. Go to: <http://www.ihj.org/certificatescenter> and login if necessary.
 - If you are not registered with the IHJ website, click “Enroll Now” and complete the required information. Repeat Step 1.

OR

- Click on “Generate and View Event Certificates”
2. Type in the appropriate code under “Confirm Event Attendance”
 - Nurses, Medical Doctors, and other health professionals: **Lean-calls3**
 3. Complete and submit the online survey then follow the prompts to request a certificate for continuing education contact hours.

In order to be eligible for a continuing education certificate, attendees must complete the online evaluation within thirty days of the continuing education activity. If circumstances prevent you from completing the survey by the specified deadline, please email info@ihj.org <<mailto:info@ihj.org>> before this period expires. After this period, you will be unable to receive a certificate.

PHYSICIAN CREDITS AVAILABLE:

The Institute for Healthcare Improvement is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to provide continuing medical education for physicians. The Institute for Healthcare Improvement takes responsibility for the content, quality, and scientific integrity of this CME activity.

IHI designates this continuing medical education activity for a maximum of, 1.5 General Conference credit hours in Category 1 of the Physicians Recognition Award of the American Medical Association. Each physician should claim only those hours of credit he/she actually spent in the educational activity.

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